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Babylonian Explorations.

IN Babylonia, as in Egypt the foundation of a temple was the birth of a city. The establishment of a shrine to some favourite deity by some pious king formed a nucleus round which in time grew up a city under the protection of the local deity. As Memphis, the ancient Egyptian capital, grew up beneath the shadow of the temple of Phthah, founded by the great Menes, so Ur of the Chaldees grew round the temple of Ur, the Moon-god, and Sippara round the walls of the shrine first erected in honour of the bright Sun-god. At the time when Menes and his pious followers were laying the foundation-stones of the temple of the Creation-god Phthah, which formed the germ of the city of the "White Wall," or Memphis, a Chaldean king, the Romulus of the empire, was engaged in founding on the banks of the Euphrates the city which in after time became the Chaldean Heliopolis. A temple, whose foundation, according to its own records, must be placed at least "3,800" years before the Christian year, and which has during the whole period of its existence been one of the most favoured shrines of the temple land of Babylonia, must indeed be a treasure-house alike to the historian and the archæologist. The record which thus carries us back to the threshold of history is brief, but its importance cannot be too highly valued. In a cylinder recently brought to England by Mr. Rassam from the ruins of the temple of the Sun-god at Abbo Hubba, the ancient Sippara, and which was written by Nabonidus, the last of the Babylonian kings, probably about the year 550 B.C., we are told that when repairing the temple of the Sun-god in this ancient city, he excavated to the depth of 18 cubits, or about 30 ft., into the foundation of the temple, in order to recover the earliest records. He was rewarded in his search by the recovery of the inscribed cylinder of Naram-Sin, the son of Sargon I., who reigned, he says, 3,200 years before his time. Remote as this date places the foundation of the temple, the reign of Sargon and his son Naram-Sin cannot be regarded as the threshold of Babylonian history; for the monuments and records extant in our museums of these kings show that prior to their rule there had been many centuries of national life and development.

The discovery of the site of this ancient temple and the vast ruins of the city which grew up beneath its shadow has already been described in these columns*, but the explorer had at that time uncovered but little of the vast series of halls and corridors, temples, palaces, and offices which formed the citadel of this most ancient Chaldean city. During his last expedition to Babylonia Mr. Rassam has chiefly directed his attention to a thorough exploration of this ancient edifice, and the result has been the recovery of much that is of the highest importance to the archæologist and architect. During the expedition of 1879 and 1880 only a few chambers were uncovered and these not in any connected sequence, so that but a faint idea could be formed of the plan and arrangement of the various edifices forming the Acropolis. The work of the last year however has however uncovered nearly one-half of the buried edifices, and the carefully-prepared plan which the explorer has allowed us to inspect shows for the first time the regular and systematic arrangement of the component parts. Mr. Rassam has himself published a brief account of his work among the ancient cities of Chaldea, but no true estimate of the extent and importance of his work could be formed until the inscribed records and monuments which he had recovered had been deciphered and examined. With these before us we are able to say that the work accomplished during the last expedition, though furnishing no such striking example of ancient art as the Ballawat gates, nevertheless is more important than that of any preceding year. New and important additions are made to this history of the empires of Assyria and Babylonia, and lacunæ, long sources of great confusion, are filled up. The curious memorial stones found in the record office of the temple furnish us with remarkable examples of Babylonian sculpture and symbolic art. But the discoveries made on this site gain an additional importance from the fact that, unlike those made at Nineveh or Nimroud, they are not confined to records of royal and kingly personages, but the great number of private documents, legal and commercial, as well as the tithe rolls and registers of the temple, give us an insight into the social and religious life of the empire at a most interesting period in the history. The great block of sacred and secular edifices which formed the Acropolis of the city of Sippara, consisting of temples, priests' quarters, and schools, together with royal residences and the Government offices, covered an area about 3,800 yards in circuity, the whole being enclosed in a quadrangular block by a strongly-built wall.

The block is placed with the angles to the cardinal points, the south-east and north-western faces being the longest, running 1,500 yards each. Entering the excavations by the southern corner, we find ourselves in the great quadrangle, a large portion of which has been uncovered by the workmen. The whole of this south-eastern face and the greater portion of the central block of the building have been uncovered, and more than 130 chambers with the corridors and squares have been cleared of *débris*. The chambers arranged along the south-east face of the great quadrangle give us a good idea of the construction of the building. The length of the face is 300 ft., the wall being broken at intervals of every 10 ft., by projecting buttresses, the whole being faced with the finest kiln-burned bricks, some of them inscribed with royal names. The six doorways which open into this quadrangle give entrance to a series of ten chambers, which from their size and arrangement were, in all probability, the dwellings of the priests. The chambers are all of the plainest construction, and, on the average, they are generally twice as long as broad. This most striking feature, however, of this block of rooms is the enormous solidity of the walls. The external walls towards the quadrangle are all 10 ft. thick, built of sun-dried bricks with external and internal facings of kiln-burnt bricks. In some cases, however, even this thickness is exceeded, and in one small chamber, whose dimensions are 12 ft. 6 in. by 20 ft., and which was probably a treasury or store-room, the walls are 25 ft. thick on each side. The rooms are usually constructed in pairs, a large ante-room, with a doorway leading into the central court being the public room, a smaller chamber leading out of it used as a private chamber and sleeping-room. Passing along this south-eastern face of the great quadrangle, we come to a pair of rooms of unusual size and highly-finished construction. Entering by a doorway about 6 ft. wide, we find ourselves in a room or corridor of strange proportion. This chamber is 75 ft. long, with a width of only 17 ft. 6 in. It has opening out of it a small inner chamber 15 ft. square. It was in this room that a most interesting and valuable series of records were found, which enable us to gain a considerable knowledge of the history and nature of the temple, and other buildings. In this chamber which his workmen thoroughly excavated, Mr. Rassam found the memorial-stone of King Nebuchadnezzar I. (B.C. 1150), the curious sculptures on which we have already described,* and two other monuments of a similar class, both of them extremely interesting on account of the sculptured bas-reliefs which decorate them, and the inscribed records they furnish. The first of these is a curious square block, bearing a much mutilated inscription of Mili-sipak, a Kassite king who ruled in Babylonia in

* See *Builder*, vol. xlii., p. 473; vol. xliii., p. 546.

* See *Builder*, p. 10, *ante*.

the fourteenth century before the Christian era. The second record is a finely-cut block of black basalt, with sculptured panels, and bearing a long inscription, dated in the reigns of Nabu-ukina-abal and Ninip-kudurutzur, two Babylonian kings whose names were unknown to us until these records were unearthed by Mr. Rassam, and whose reigns are to be placed in the eleventh century before the Christian era. In the same chamber were found records of Nebuchadnezzar II. (B.C. 605), and Nabonidus (B.C. 555), both of whom were most lavish benefactors and restorers of this favoured shrine.

Before proceeding to examine these records we will complete our tour of the excavations. The wall opposite the doorway by which we entered this record-chamber divides it from a second and smaller courtyard, round which are grouped a series of twelve chambers. This courtyard is 75 ft. square, and the whole block bears a most remarkable correspondence to *khans* or blocks of commercial buildings in Baghdad or Hillah. The fact that this block was the registry or chancellerie of the temple is proved by the discovery of more than ten thousand inscribed tablets in one of the large chambers opening into the court. These tablets contain lists of the tithes, dues, and various financial transactions of the temple authorities, and form an almost complete series of memoranda, &c., from B.C. 660-400. Returning to the great court from which we started, and which is in all probability to be identified with the "Court of Bel or Belus," mentioned in the inscription of Nabubaliddina (B.C. 885) which was found in the temple by Mr. Rassam in 1880, we cross the court to examine the great central block. This block, about a dozen chambers of which have been excavated, is, like the main building, protected by an outer buttressed wall of kiln-burned brick. The chambers are arranged in pairs, and open into a central area probably about 150 ft. square. The decorations of some of these chambers were peculiar, the walls being coated with plaster and painted black and white. From this mode of ornamentation it is probable that here was situated the temple of Anunit, the Anatis of the Classics, who was the goddess of the morning and evening star, and whose temple, by its black and white decorations, symbolised her dual attributes. The temple of the Sun-god, the most ancient of the edifices of Sippara, was situated on the north side of this courtyard, and surrounded by several chambers.

To the north-west of the temple of the Sun-god, and about 100 ft. away, was a large block of some twenty chambers, irregular in plan, but which, from the records found, were probably the royal residence, occupied, as we know from the inscribed tablets by Nebuchadnezzar Nabonidus and his son, Belshazzar, — the Belsarutzar of the inscriptions,—Cyrus, and Darius Hystaspis. In the northern and eastern portion of the mounds several other groups of chambers have been uncovered, but their relationship to the others is obscure until further excavations have served to connect them with the more thoroughly explored portions. The great temple, whose ruins are now open to us, and whose lavish supply of records invite us to learn its history, formed a great centre of Babylonian life, and all the changes of the kingdom have left their records upon its walls or in the record chambers.

The most flourishing periods in the temple's history appear to have been: first, in the Middle Ages, that is, from the fourteenth to the tenth century before the Christian era, the time when Assyria was just rising into power; and secondly, during the period of the later Babylonian empire, from B.C. 625—538, when the pious priest-kings Nebuchadnezzar II. and Nabonidus richly endowed its treasury and restored its ruined halls and shrines.

From the fourteenth century until the latter part of the eleventh century, the kingdom of Babylonia was ruled by a dynasty of Kassite or Northern Elamite kings, who had intermarried with Babylonian royal personages and founded the dynasty which Berosus called Chaldean. Among this race the demonology and fetish worship, which had formed the basis of the religion of Babylonia, lingered on, and we find their monuments and inscriptions revealing this superstitious belief in demons and spirits. The memorial-stone of Nebuchadnezzar I., which we have already described, exhibited many examples of quaint representation of the demons and gods who were invoked to protect the memorial. For quaint and grotesque symbolism this record is, however, far surpassed by the memorial-stone of the Kassite king, Mili-Sipak, now exhibited in the Assyrian side-room in the British Museum. From this we gain some idea of the composite figures described by Berosus as in existence before the creation of man, for more extraordinary combinations of human and animal life it is difficult to imagine. Two, however, are particularly interesting. The first is the figure of a serpent-woman; the upper part of the figure is that of a woman winged and full breasted, like the figures of Artemis; the lower extremities are formed of the tails of two serpents intertwined, and terminating in bird-like claws. This curious figure, not unknown in Western grotesque art, is certainly strange to Babylonian mythological symbolism, and it would be interesting if the inscription,—unfortunately very mutilated,—had preserved the name of this demon. It, in all probability, represents the Kir-kir-Tiamat, or "Serpent of the Sea," the female demon of darkness with which Merodach fights in the creation legends. This creature was feminine in gender, and had the attributes of a serpent, such as are here figured. Another curious figure, and one which afterwards found its way into Western art, is that of a combination of Pegasus and the Centaur,—a winged horse with the fore part of a human body drawing the bow. This curious Hippo-Sagittarius forms an interesting figure, together with the Scorpion Sagittarius, which occurs on the stone of Nebuchadnezzar.

These monuments of the Kassite kings of the fourteenth century before the Christian era show that the demonology and fetish worship had survived among these people, and had not, like that of the Babylonians, yielded to the purer creed of the Semites. Indeed, it is most probable that the Yezdis, or Devil Worshippers of Hindostan, are a survival of these ancient people, as their dual creed and the worship of the evil spirit seem to correspond to many of the tenets of the Kassi. That the serpent was regarded as the opponent of the great gods, and so invoked to curse the evil-doer, is shown by a passage on the Michaux stone in the Louvre, where Zergina, the owner of certain land, states that on this stone he has placed the emblems of the "spirits of the great gods and of the serpent god," who are to curse with an irremovable curse the person who injures the landmark. The monuments recovered by Mr. Rassam of this period from the temple at Sippara show how this belief in the power of the gods and spirits was current among the common people. Every legal or commercial document of any importance had attached to it certain imprecatory clauses, and among the inscriptions recovered during this last expedition of Mr. Rassam we have a very curious example of this class in the deed of dower of a woman named Gula-Sarbat, the wife of a man named Samas-iddina-Suma. This inscription is engraved on a large basalt boulder, and is accompanied by several interesting sculptures. On the obverse we have a series of four panels, filled with representations of demons similar to those on the stones of Nebuchadnezzar I.; but on the obverse we have figures of the chief parties mentioned in the contract. Above the first figure is inscribed the legend, "The figure of Nabu-ukina-abla, the established king, king of Babylon."

The king is clad in a long and very richly-embroidered robe, upon which we have representations of the worship of the sacred tree by the Anunaki or spirits, and other mythological scenes. The hem is decorated with a flower border and fringed. The king wears on his head a tall cap somewhat similar to that of the Greek priests, richly embroidered and decorated like the robe. The long hair and beard are curled in the style of the Assyrian Court. Like the figures of Merodach-nadin-akhi (B.C. 1120), in the British Museum, the king is represented as wearing shoes, made of some plaited material, probably grass or rushes, similar to the slippers of the Arabs about Baghdad. These shoes were evidently a mark of rank, for we see that the courtier, Ardu-Sisnabi, who stands before the king, wears sandals and not shoes. He carries a bow in his hand, while behind him walks his daughter, the woman Gula-Sarbat, whose deed of dower is inscribed on the stone. Ardu-Sisnabi is clad in a long robe, quite plain, bound round the waste with a broad girdle. He carries in one hand a bow ready strung, and in the other two arrows. His daughter also wears a plain robe, skull cap, and the only decoration or ornament being a massive pair of gold earrings. She bears in her hands some offering for the king.

Without entering into all the complicated details of the inscription, the subject matter is this. The King Nabu-ukina-abla had given an estate to the man Ardu-Sisnabi, the son of Adraddas. There appears to have been an entail or deed of inalienation upon the land, similar to the law of Jubilee return among the Jews upon the estate, and this was only overcome by an addition of 240 pieces of silver to the price paid for the land, making in all 687 pieces of silver. This document is extremely interesting to the student of ancient Babylonian legislation, and also serves to throw light upon many of the legal decisions and terms current in the Talmud. Among the parties to the deeds are priests of the temple of Anunit and of the Sun-god, and it is on account of their participation in the proceedings that the document was placed in the temple treasury.

The two great temples at Sippara were called respectively Bit Parra, "the house of Light," and Bit Ul Bar, "the house of the Star," the former being dedicated to the Sun-god and situated, as Mr. Rassam's explorations have shown, in the centre of the mound. The latter was, in all probability, placed on the north-west side of the great courtyard. An extremely interesting fragment of an astronomical inscription recently discovered by Mr. Pinches, of the British Museum, serves to show that the ancient Babylonians had moved the cardinal points 45 deg., so that the Babylonian east was north-east, and the west south-west. By this interesting discovery we see that the temple discovered by Mr. Rassam,—indeed, all the great temple chambers at Babylon, Borsippa (Bois Nimrud), Ballawat, and Nineveh,—are built east and west, the shrine or cella being at the east end. The goddess Anunit, — the Anatis of the classical writers, whose temple was the second great fane in Sippara,—was "the great goddess" in the Babylonian Pantheon, and the origin of the great Asiatic mother-goddess whose worship extends over the whole Eastern world. Her attributes, as recorded in the inscription of Nabonidus, found by Mr. Rassam, are "lady of battle," "bearer of the bow and mace," "the great mother," she who, with the rising and setting sun, gladdens the heart of the king.

In Assyria, her worship was absorbed into that of the great Istar, as in Phœnicia into that of Ashtaroth, or in the land of the Hittite it became that of Ate, Atargatis, or Artemis. On account of her astronomical character as the planet Venus, the morning and evening star, the temple built for her at Sippara was decorated with black and white, and she is called "the companion of the Sun-god," "the sister of the Sun-god," "the daughter of the Moon-god." These epithets all show the importance of the shrine discovered by Mr. Rassam, and when some of the numerous religious inscriptions are examined it is to be hoped that much light will be thrown on this important element in Babylonian worship.

It would seem to have been Mr. Rassam's mission during this last expedition to succeed where others had failed. No ruin amid the thousands of mounds which stud the plains of Babylonia is so familiar to students as the "Birs Nimrud" or "tower of Nimrod," situated to the west of the ruins of Babylon, and on the right bank of the Euphrates. From the days of Benjamin of Tudela until the present time all explorers and travellers have visited it, and many attempts have been made to explore its ruins; but until this last expedition of Mr. Rassam's the vast mass of *débris* and vitrified brickwork has remained an unsolved problem. After repeated attempts the workmen came upon traces of extensive buildings, more than eighty chambers having been uncovered beneath the shadow of the great mound upon a kind of flat form leading up to it. The buildings were evidently part of the great temple of Nebo, which formed the Acropolis of the city of Borsippa, of which the Birs Nimrud and adjacent mounds mark the ruins. The city of Borsippa, the twin of Babylon, was founded certainly as early as the year B.C. 2750, when the shrine was restored by Khammuragas, a Kassite king, an inscription recording such a work of restoration being preserved in the Louvre. The explorations carried out by Mr. Rassam have laid open a number of chambers, the cheif being a large banqueting-hall, over 90 ft. in length, with ante-chambers leading

into it. This was evidently part of the palace built by Nebuchadnezzar, and afterwards enlarged by Nabonidus. This chamber had been decorated with enamelled bricks similar to those found in the Egyptian temple at Tel El Yahoudeh and at Khorsabad.

The explorations which Mr. Rassam has carried out during this last expedition have served to show that beneath the mounds in Babylonia lie buried treasures which far exceed in importance and antiquity those yet recovered from Assyria. It is to be hoped that the trustees of the British Museum and the Government will relax no effort that may lead to the continuation of the work, which, if properly and efficiently carried out, will furnish results far exceeding the dreams of archæologists, and restore to us whole chapters in the world's history.

ARCHITECTURE AMONG THE POETS.

There are two senses in which one may find some interest in the manner in which architecture has been referred to by poets. Such references may, in the first place, throw historical light on the manner in which the art of architecture was regarded at a certain period, and even on the practical facts in regard to the buildings of the age referred to. An incidental reference from a poet forms a kind of unconscious and unpremeditated testimony, sometimes, which is more significant than more definite and intentional historic evidence might be. The other kind of interest is of a more purely intellectual nature; it is that which arises from the employment by the poet of images drawn from architecture, or from the application of poetry to give vivid and picturesque descriptions of architecture. In both cases we are pleased by finding architecture drawn from a semi-practical to a purely poetic sphere, which dignifies it for the moment to an exceptional degree. For as poetry is the most pure exercise of thought and imagination in its highest form, for the poet to draw upon architectural images to heighten the force of his expressions is to put architecture and the associations connected with it to a very high use, and one entirely distinct from the prosaic side of the subject; and, on the other hand, for the poet to employ his power of language and imagery to describe architectural beauty for its own sake, is often a means of suggesting to us new lights on the subject, as well as a proof of the really high interest of the art in itself.

If we begin to look through the pages of poetry for such allusions, however, we shall find that, as with landscape, the taste for architectural picturesqueness, as a subject worth reference and description in poetry, is a comparatively modern one. From a poet's point of view, in fact, architecture is generally a part of a scene, a feature in the landscape, and the feeling for landscape is essentially a modern one. Some modern poets, however, as we shall have occasion to observe, have evinced in their writings a considerable interest in architecture for its own sake, by a number of very effective and picturesque allusions to, and descriptions of, architecture and architectural details. But if we look through the oldest poet we know,—Homer,—we find not only that the references to architecture are very few, but that they are curiously artificial, and hardly convey to our minds the idea of any real possible building. They seem to be the references, in short, of an age of goldsmith's work, in which everything is imagined as of metal, and mostly of the precious metals. When Ulysses comes to the palace of Nausicaa's father, for instance, we have one of the very few bits of anything like detailed description of architecture in the Homeric poems (in the Iliad there is not one reference that can be called descriptive), but it is evidently an entirely fanciful description, illustrating the semi-barbaric taste of the age, speaking of silver columns with brazen bases, the walls of massy brass, &c., the lintels of silver; and the probability is that the poet was merely indulging his luxuriant fancy in this way, conscious that buildings in poetry, like castles in the air, may be produced regardless of expense. Remarkable is the contrast between this and the most striking of the few references in Virgil to architecture,—the passage, namely, in which he describes how, during the sack of Troy, the outer doors of Priam's palace were broken through, and how the long corridors and halls suddenly appeared to view, in strange contrast with the tumult and clamour in the streets:—

"Ipse inter primos, correptâ dura lipenni
Limina perrumpit, postesque a cardine vellit
Æratos; jamque excisâ trabe firma cavavit
Robora, et ingentem lato dedit ore fenestram;
Apparet domus intus, et atria longa patescunt;
Apparent Priami et veterum penetralia regum,
Armatosque vident stantes in limine primo."*
Æneid, book ii.

This is in quite a different tone from the Homeric architecture; it is the thought of a poet of a civilised age, accustomed himself to frequent great houses with long vistas through ranges of rooms, and introducing into his poem architecture as it appeared in his own experience. It may be thought by some that the Homeric description, though it must be false as to the facts indicated in the idea of walls and columns of solid brass and silver, may be true as to the appearance, and may be only his way of describing the plating of the walls and columns with precious metal, which very probably was a practice to some extent, judging from the great abundance of gold which must have been available and in use at that time. But this does not tally with the description, nor could even gold and silver plating have been carried out in a palace so large as we are evidently intended to suppose that of the king of Phæacia to be. And it is noticeable that we find the same tendency towards gold and silver architecture in other ancient descriptions. Every one will remember the description of the celestial city in the twenty-second chapter of the Book of Revelations,—the "walls of jasper," the city and streets "of pure gold, like unto clear glass," the courses of the walls set with precious stones, and the gates each of a single pearl. This gorgeous imagination, which probably belongs to the third or fourth century of the Christian era, seems in keeping with that taste for rich and gorgeous effect in gilding and colour which was to be exemplified not so very much later in the Byzantine church architecture. In the Book of Revelations, however, there is hardly a pretence at a description drawn from any real model; the gold is "transparent"; the materials are drawn from an imagination which set no bounds to the beauty even of mere material in the heavenly city. But it is significant to find, in reference to this Homeric description, that when we turn to Chaucer we find, in his few and brief architectural references, just the same taste for metal architecture, as if this were a natural tendency in poets of an early and unsophisticated school of poetry. In the "Assembly of Foules" the poet says:—

"And upon pillars great of jasper long,
I sawe a temple of brass y-founded strong";

and in the "Court of Love" he finds the castle wherein dwelt the king of love,—

"For I beheld the toures high and strong,
And high pinnacles, large of hight and long,
With plate of gold bespred on every side,
And precious stones, the stone werke for to hide.
* * * * *
No saphire in Inde, ne rubie rich of price,
There lacked than, nor emeraud so grene."

The latter point resembles the idea in the Book of Revelations, but it will be observed that Chaucer † is more practical here, and distinctly describes the gold and precious stones as *appliqués* only, to hide the stone, not as integral parts of the structure. In his description of the Temple of Mars, in "The Knightes Tale," he apparently chooses his materials out of an idea of what should be in keeping with the character of the deity therein housed:—

"Ther stood the temple of Mars armipotent,
Wrought all of burned‡ steele, of which th' entree
Was longe and streite, and gastly for to see.
* * * * *
The northern light in at the dore shone,
For window on the wall ne was ther none
Thurgh which men mighten any light discerne.
The dore was all of athament eterne,
Yclenched overthwart and endelong,
With yren tough, and, for to make it strong,
Every piler the temple to sustene
Was tonne-gret, of yren bright and shene."

The point, that there was no light but through the door, is noticeable: Chaucer had no notion of a hypæthral temple evidently. But it shows how little poets in Chaucer's day thought of drawing upon actual architecture in their poetical descriptions, that Chaucer, living in the midst of the great Gothic building age, not quite in its noblest but in its richest phase, and with the monuments of its greatest style still comparatively new around him, never refers in any way to the beauty of the Mediæval cathedrals. The "Knightes Tale" is told on the pilgrimage to the lovely cathedral at Salisbury, then almost in its pristine beauty; but the only architectural images are of these temples with steel pillars, and so on. The fact is doubly significant. It confirms, on the one hand, the opinion which has been sometimes suggested, that the sentiment which we have in regard to the Mediæval cathedrals did not exist in the age which built them. Chaucer reflects the spirit of the society of his day in a hundred ways, but enthusiasm for cathedral architecture appears nowhere in his writings; the only direct reference to Mediæval building is in the practical remark put into the mouth of a monk, in defence of his exacting demands on one of his parishioners,—

"By God, we owe yit fortie pound for stones,"

a significant indication of the light in which these great ecclesiastical building achievements may have been regarded by the laity, whose mouthpiece Chaucer is always; the clergy, the "regulars" at least, are only marks for his satire. What is also to be observed in regard to these references of Chaucer's is that they seem to imply an acquaintance, in some way or other, with Classic forms of architecture, for the words convey that idea; the iron pillars "tonne-gret," *i.e.*, of a ton weight, must have been single columns to be regarded as one piece; not built-up piers. There is a little bit of decorative work alluded to in the same poem, which seems more Gothic in character, and as if taken from some Mediæval shrine. Theseus made three "oratories,"—one to Venus, one to Mars,—

"And northward, in a touret on the wall,
Of alabaster white and red corall,
An oratorie riche for to see,
In worship of Diane of chastitee."

Chaucer may be expected, in fact, to mix up suggestions of pagan architecture (as far as he had any hint of it) with Christian, just as he and other Mediæval poets mingled Classical with Scriptural images. There is, again in the same poem, the longest and most elaborate of the "Canterbury Tales," a description of the amphitheatre made for the combat between Palamon and Arcite to take place in, which is interesting as indicating a very comprehensive idea in Chaucer's mind as to the requirements for doing the thing really well:—

"The circuite a mile was about,
Walled of stone, and diched all withoute.
Round was the shape in manner of a compas,
Full of degrees, the hight of sixty pas,"—

(This appears to refer to what would be now called the *section* of the amphitheatre, which was such as to rise to the height of sixty paces on the exterior limit. He goes on to say how the seats were arranged so that no spectator should intercept the view from another),—

"That when a man was set on o degree,
Him letted not his felaw for to see.
Estward ther stood a gate of marbel white,
Westward right swiche another in th' opposite.
And shortly to concluden, swiche a place
Was never in erthe, in so litel a space,
For in the land ther n'as no craftes man
That geometric or arsmetrike can,
Ne portreiour, ne kerver of images,
That Theseus ne yaf him mete and wages,
The theatre for to maken and devise."

Chaucer here shows the complete idea of architecture as the result of the combined forces of the geometer and the artist. This poem is unquestionably Chaucer himself. The famous description of the palace of glass in "Chaucer's Dream" is too often quoted to need citation, and its authenticity is questioned; but the passage quoted above seems to come, not inappropriately, from "Geoffrey Chaucer, clerk of workes."

When we look at Spenser, who, as has been often observed, affected an obsolete style, and imitated to some extent the style and orthography of the Chaucer school, we find in his few touches of architecture just the same characteristics as in the Chaucerian poems. Sometimes he repeats the purely bullion architecture, as we may call it,—indeed, he uses that very phrase ("Faerie Queene, iii. 1. 32):—

"The roiall riches and exceeding cost
Of every pillur and of every post,
Which all of purest bullion framed were,
And with great perles and pretious stones embost;
That the bright glitter of their beames cleare
Did sparkle forth great light, and glorious did
appeare."

* "He himself" (Automedon) "among the foremost breaks through the entrance with his two-handed axe, and tears from the hinges the brass-covered doors; now he has cut into the heart of the lintel itself, and left only a huge wide-gaping opening; the long halls of the mansion lie open to view; the interior of the house, the private chambers of Priam and of the ancient kings are laid bare, and behold armed men standing at their very doors."

† The authorship of both the poems quoted is, in fact, doubtful; but they belong to the Chaucerian epoch, and it is convenient to class them as Chaucer's, in default of any other known author.

‡ Burnished.

This is very sugar-candy architecture. At another time he seems a little more practical, and is content with merely overlaying the building materials with precious metals (*Ibid.*, i. 4. 4); but this on examination turns out to be only an allegory, to show the false display of Duessa's Castle:—

"A stately palace built of squared bricke,
Which cuuningly was without mortar laid,
Whose walls were high, but nothing strong or thick,
And golden foile all over them displaied
That purest skye with brightnesse they dismaid;
High lifted up were many loftie towres,
And goodly galleries far over laid,
Full of faire windowes and delightful bowres;
And on the top a diall told the timely howres.

It was a goodly heape for to behould,
And spake the praises of the workman's witt;
But full great pittie, that so faire a mould
Did on so weak foundation ever sitt;
For on a sandie hill, that still did flitt
And fall away, it mounted was full hie:
That every breath of heaven shaked itt;
And all the hinder partes, that few could spie,
Were ruinous and old, but painted cunningly."

It would not be difficult to find some Duessa's Castles, out of Fairyland, to fit part at least of this description; but to the actual facts of architecture there is not a single reference in Spenser's poem, beyond the occasional mention of castles as frequently recurring phenomena.

The transition from Spenser to Milton is more natural than to Shakspeare, although a little out of chronology. Milton's stronger and more practical mind was less given to mere toys of illustration than Spenser, yet he in his epic is carried away, not unnaturally, into the same architectural ideas as those which the Book of Revelations suggests; a celestial architecture of gold and precious stones sparkles also in his Heaven, and even in the opposite region, where the structure rose beside the burning lake,—

"Built like a temple, where pilasters round
Were set, and Doric pillars overlaid
With golden architrave; nor did there want
Cornice or frieze, with bossy sculptures graven;
The roof was fretted gold."

Milton, who knew the whole range of classic and Italian literature, was of course familiar with the designations of the main parts of the temple, cornice, frieze, &c.; but the most notable expression in the above quotation is that of the "bossy sculptures," for the epithet shows that Milton was alive to the decorative effect of sculpture as a part of the architecture, as supplying a "bossy" surface in contrast with the smooth surface of other portions of the building. The use of the expression implies a critical eye for effect. The Gate of Heaven, in book iii., is described more in the vague and purely ideal manner in which John Martin used to paint; the gate is seen at the apex of the vast flight of steps, "degrees magnificent," ascending to the wall of Heaven, "at top whereof" (*i.e.* of the steps)—

"But far more rich, appear'd
The work as of a kingly palace-gate,
With frontispiece of diamond and gold,
Embellish'd: thick with sparkling orient gems
The portal shone, inimitable on earth
By model or by shading pencil drawn."

The phrase "inimitable on earth," is obviously a kind of excuse on the part of the poet for his inability to give any more precise description, he prefers to leave it vague. The idea, at best, is somewhat poor and tawdry; so is the description of the royal seat at which the rebel angels mustered,—

"With pyramids and towers
From diamond quarries hewn and rocks of gold."

In "Paradise Regained" we have the effort to describe, not celestial but terrestrial architecture, that of Rome and Greece, in the vision of "all the kingdoms of this world and the glory of them" shown to the Saviour from the lofty mountain; but the architectural vision of the Tempter is not very clear, and, acting as showman to the view of ancient Rome, he describes architectural features which certainly were not really there,—

"There the Capitol thou seest
Above the rest lifting his stately head
On the Tarpeian rock, her citadel
Impregnable; and there Mount Palatine,
The imperial palace, compass huge, and high
The structure, skill of noblest architects,
With *gilded battlements*, conspicuous far,
Turrets, and terraces, and *glittering spires*."

It is worth while to notice this falsity of impression about ancient Roman architecture, because we shall see in another number with what admirable truth and vigour the impression of it is conveyed by a living poet who really understands the subject. Milton shows his practical turn of mind, however, in describing the demolition of the Philistian Theatre by Samson; he takes care to account, as far as he can, for the fact that Samson should have been able by one effort to bring down the whole building; it was, he tells us,—

"a spacious theatre,
Half round, on two main pillars vaulted high,"

and the idea in his mind seems to have been that of a vault carried over from the side walls, and meeting on coupled columns in the axis of the theatre; a construction which, on a small scale (and the theatre was to hold only "the Philistian lords,"—the vulgar stood without), is not impossible, though, of course, more easily conceivable if we imagine it as not "half-round," but an amphitheatre with a central pier, on the same principle as some of the Mediæval chapter-houses. This does not seem to have occurred to Milton, but it is creditable to the logical side of his character as a poet, that he evidently felt the necessity of making the catastrophe practicable, and endeavoured to explain how it was so. Milton, however, does give descriptions of actual architectural effects, in a way that Chaucer and Spenser never attempt; as not only in the too well-known passage in "Il Penseroso" describing the cathedral and its cloisters and its vaulted roof and stained windows (which in later days Milton would probably have helped to break down), but in the charming bit of landscape in "L'Allegro," in which we see towers and battlements,—

"Bosom'd high mid tufted trees,"

A passage showing that Milton appreciated the beautiful effect of architecture of the castle type half seen amid thick foliage, as painters love to show it.

Our great poet *par excellence* is little troubled with architectural fancies; he cared more for the people than for the houses they lived in or the churches they worshipped in; and the allusions of any kind to architecture are few and far between. There is no hint of "local colour" in the scenery of the "Merchant of Venice," for instance, beyond the mere use of the word Rialto and the reference to a gondola; there is Southern passion enough in some of the characters, but nothing of it in the surroundings; and the one direct architectural reference or illustration is one that is completely English, and has been before quoted as showing how little stone building was indulged in then,—

"Should I go to church
And see the holy edifice of stone,
And not bethink me straight of dangerous rocks,"

as if it were only in church-going that he were likely to see a stone building. This shows emphatically how Shakspeare drew his scenic ideas from what was before his eyes; one would have supposed that the slightest information he could have gained about Venice would have shown how inapplicable was such a simile to the scene and the speaker, living in a city full of stone palaces. Shakspeare seems to have attached a special idea of dignity and spaciousness to the word "temple," which he brings in when he wishes to be specially dignified, as in the magnificent expression of good wishes to the city in "Coriolanus,"—

"The honour'd gods
Keep Rome in safety, and the chairs of Justice
Supplied with worthy men! Plant love among us!
Throng our large temples with the shows of peace,
And not our streets with war!"

and again in the well-known and still finer passage in the "Tempest," where he brings in the "solemn temples" and "cloud-capped towers" (the latter expression a splendid hyperbole) as images of the most lasting and immovable things on earth. But in Shakspeare, also, it is to be observed, we find, for the first time in our review, the use of architectural imagery, not merely descriptive, but to heighten poetic expression. Of this, which is the highest use to which poetry can put architecture, we find two examples, one in an exquisite line in the sonnets, where he compares the leafless trees in winter to

"Bare ruined choirs, where late the sweet birds sang."

The other in a beautiful speech of *Valentine's*, in that very unequal play, "The Two Gentlemen of Verona" (act v., sc. 4):—

"O thou that dost inhabit in my breast,
Leave not the mansion so long tenantless;
Lest, growing ruinous, the building fall,
And leave no memory of what it was!"

This is a noble poetic use of architectural imagery, and in a very high strain; it is the more to be regretted that he spoils it immediately after in the next line, with one of his "conceits":—

"Repair me with thy presence, Silvia,"

the unfortunate word "repair" immediately suggesting a contract for repairs. That might be one of the lines that Jonson wished Shakspeare had "blotted." It is again observable that Verona, the city the very name of which is so full of architectural suggestiveness to the modern poet or reader, suggests nothing whatever to Shakspeare: it was Verona to him, a place on the map, "and it was nothing more."

In looking over some of the less-known English poets, we shall find some interesting and curious architectural reflections: "You shall see anon."

THE LATEST ON THE LIGHTING OF GREEK TEMPLES.

A NEW publication by Mr. Fergusson* always promises materials for thought, provocations of controversy, presentations of novel views that sometimes startle us as paradoxical, sometimes as rather more than paradoxical, but which quite as frequently force us to a studious revision of our most settled opinions, or capture our convictions straight off, and carry us willingly away into new fields of fruitful speculation. A writer who has the unhesitating courage of his opinions is always inspiriting, and all the more when those opinions are exceptionally courageous, and in neither of these respects will there ever have been any complaint to make of Mr. Fergusson. Least of all is there any disappointment prepared for us in the present *brochure*.

"The Parthenon" is the leading title given to "An Essay on the Mode in which Light was introduced into Greek and Roman Temples," and with all appropriateness; for though confessedly "but a small portion of the book is devoted directly to the description of the Parthenon," all the discussions it contains are collateral to the question which is chiefly interesting,—in what manner was the noblest work of Hellenic genius in architecture completed so as fitly and adequately to display the noblest example of plastic art, the statue of Athene, of ivory and gold, by Phidias, the appropriate housing of which was the purpose of the structure. Until this problem is solved uncertainty must hover about our conception of the degree to which the Athenian architects succeeded in producing a truly noble effect within the temple; in designing an interior of such majesty of proportion and grace as to be worthy of the unrivalled dignity of the exterior, and of the personified genius of the nation.

It is too well known that the ravages of time and barbarism have left us no direct monumental evidence to control or guide speculation; we are also grudged any literary record. In templar as in naval architecture,—as to the lighting of a naos and as to the arrangement of the banks of oars of a trireme,—a paragraph or two of a few lines by Livy, Vitruvius, Pausanias, or Julius Pollux that would not have taken them one sentence out of their way, would have saved us all the difficulty. The ship arsenal of Philo, as we have lately seen, was thoroughly lighted by window openings in both side and end walls, and provided with shutters which were of bronze, no doubt for security. There were windows in the western wall of the Erechtheum which would light one-half of the double temple; the very small temples, usually Ionic, were certainly sufficiently lighted from the entrance-door; and this may even have been the case with the opisthodomus of the Parthenon, which was used as a treasury, and was less deep than wide. But it is certain that windows were never inserted in the walls either on front or flank of the larger peristylar temples, which were divided within by rows of columns, in some cases supporting galleries, and were far too deep to receive sufficient illumination through the doorway, even though this had not been darkened by a pronaos in front of it, as well as by the exterior colonnade. The supposition that darkness was tolerated within them unless for the precarious glimmer of lamps or the flare of smoky torches has been thought worth putting forward, but it is not worth discussing. The requisite light of day, therefore, in these instances must have been admitted from above through the roof; in the latitudes in question very moderate openings are sufficient, so diffusive is the sunlight; but whatever may be the

* The Parthenon: an Essay on the Mode by which Light was introduced into Greek and Roman Temples. By Jas. Fergusson, F.R.S., &c. London: John Murray. 1883.

restriction of opening when the employment of neither glass nor even of translucent stone is to be assumed, the question of the most appropriate place for the openings is seriously complicated by the difficulty of keeping out heavy downfall of rain and snow in ordinary cases, and especially in the not unfrequent cases of storms of wind of tempestuous violence. The reports of those who have had experience of scaffolding on the Acropolis oblige us to take driving winds of great force and sudden gusts into very serious consideration.

One of Mr. Fergusson's conclusions,—changing his order of enumeration,—is that "Corinthian temples were, as a rule, lighted by hypæthra or pseudo-hypæthra." Vitruvius speaks of an hypæthral temple, of which that of Jupiter Olympius at Athens is his example, as "open to the sky in the middle." As the breadth of the nave here was nearly 100 ft., it is tempting to infer that the difficulty of roofing it was relieved by a central open court, or *cortile;* a sacred area free to the sky. The interpretation adopted by Mr. Fergusson, and fully illustrated in the first plate, is that the opening to the sky was intermediate between the portico and naos, above a pronaos, of such width as to allow light to penetrate to the naos through a vertical opening in the cross-wall,—as if, in fact, through an east window. The structural requirements of the problem, as thus dealt with, are worked out with surprising ingenuity and resource; the arrangement is clearly quite possible; to what extent it is either probable or plausible could only be appreciated after full hearing of counter arguments which cannot be at present either anticipated or taken for granted. The challenge is given fairly and frankly enough, and claims a response in like spirit.

Another conclusion recommended for acceptance is, that "no temple in the ancient world with the solitary exception of the Pantheon at Rome,—was lighted by a horizontal as contradistinguished from a vertical, opening." This is a thesis which it seems desperate to maintain in its full generality, considering how far we are from possessing details and descriptions of all the temples in the ancient world. Even if we reduce the universality of the *dictum*, it grates somewhat harshly, though it may be only on hasty assumptions, traditions, and prejudices. Difficulties as to inlet of weather apart, it is impossible to imagine a large area and lofty apartment more perfectly and beautifully lighted than the Pantheon by the light that flows in through the comparatively small circular opening at the crown of its cupola. The coffering of the dome interiorly between the ribs, is a direct transference from the lacunaria of the horizontal ceilings of Greek architecture; and imitation in this respect may be not unfairly held to suggest that the curvilinear opening is also a modified transference from a central rectangular opening between crossing beams. Nay, it may be said that we have representations of such openings in horizontal ceilings. It is difficult to interpret otherwise the ceiling, Plate 55, of Wood's Palmyra, which shows an oblong divided into small coffers, with the exception of two blank squares, each equal to sixteen of the smaller, and occupied by what are apparently representations of the couple to whom the tomb pertained, with the open sky beyond them. In Plate 16 we have examples from recesses in a small temple. Here a circle is inserted in a large central square, and that it is to be taken as representing an opening to the sky, is made clearer by a surrounding border decorated with the signs of the Zodiac. A rock-cut model of a temple at Cyrene from Captain Beechey's Travels, may be pressed into the service of this argument, though engraved by Mr. Fergusson, p. 45, in a different connexion. It represents a peripteral temple, bearing on the roof, across the ridge and equidistant from either front, a flat slab, which covers a portion of the tiles on either side. This is regarded by Mr. Fergusson as a representation, perhaps carelessly copied, of an attic; but it is quite open to be regarded as the frame of a square, within which were contrived, it may be several, openings carried down to the lacunaria of a flat ceiling. Such a margin might evidently be made available for the accommodation and working of a shutter. There seems to be very much in favour of managing a top light and a single light, or at least light from a single direction, when it was a matter of importance to display worthily the very noblest masterpiece of Greek sculpture,—in favour, that is, of light admitted, not from one side of it, or from both sides, but on the line of the very axis of the naos. So much for conjecture and speculation in this direction; for he will be daring indeed who will pretend to have laid by this process a basis for certainty. When the argument so far is looked at with most indulgence or most predilection, the consciousness still remains that the storm-gods have to be reckoned with. Doubtless, when we consider the ingenuity and perfect skill in execution, of which the Greeks have left an example in the marble tiling of the temple at Bassæ, we are called upon to credit them with being equal to contrivances which should on occasion preclude the entrance of storm-waters from without, or deal with them so as to carry them off harmlessly from within. But as regards our own position, until we can suggest forms of contrivances for one or other of these contingencies, which shall recommend themselves as both practicable and consistent with beauty, it is clear that we are left with the unsolved knot of the problem still on our hands. That a central opening would involve a disagreeable break in the ridge-line of the roof,—a broken-backed effect,—is not to be apprehended. The slope of the Greek roof is so moderate that the parapet of the opening of which the Cyrene tomb gives a model, might easily equal, or even slightly exceed, the ridge-line in height. It may even be believed that some advantage would accrue from the horizontal border of the opening being visible from certain aspects of the building, and in consequence taken for granted mentally from all. A manifest expression of a provision for lighting an apartment so spacious as the naos of the Parthenon, behind its enveloping colonnade, seems necessary to preclude the unpleasant suggestion that it must be a dark chamber.

The main conclusion which Mr. Fergusson arrives at as to the lighting of all Grecian Doric peristylar temples, is obtained in a very different direction, and enforced by arguments which he has "no fear that anything will be discovered to invalidate." He believes it possible to prove, in fact, that light was admitted to these by clearstories; and if proved it may be, it will certainly be by such arguments and illustrations as he marshals and accumulates. In two plates, sections are provided of restorations of the Parthenon at Athens and Apollo at Bassæ, which exhibit, with unhesitating decision and directness the application of this principle. In the temple at Bassæ openings of the breadth of two of the marble tiles are placed conjecturally over the ceiled spaces between the Ionic columns of the naos and the side wall; any rain-water or melting snow that might enter here directly from above would fall on the inclined surface of a stone, which is introduced to cover the lacunaria stone, and discharge by a perforated channel into the ambulatory. The light admitted in this manner through the roof-opening would pass to the naos diffusively, though obliquely, through vertical clearstory windows opened from space to space above the sculptured frieze. That these arrangements would give sufficient light to the naos there can be no reasonable doubt, and as little that they would admit of easy protection from the violence of the weather, even in this peculiarly bleak district of Arcadia. There is not wanting even a glimpse of partial confirmation from monumental remains. Two fragments of marble tiling were found, and drawn by the original explorers of the ruins, which presented a moderately-raised ridge round a central perforation, slightly rounded off at the corners. There appears to be no alternative but to assign the openings on the slope of the roof thus plainly indicated either to the position given to them by Mr. Fergusson, or else to place them nearer to the ridge, where they would come over the body of the naos between the lateral ranges of Ionic columns. It requires some courage to undertake to maintain the feasibility of either of these adjustments in view of all the difficulties; but it would require, probably, most courage to contest the superior feasibility of Mr. Fergusson's preference. He is, however, content to treat one inconvenience lightly which we cannot but think that he would have done well and be equal to grapple with; that is, the discharge of storm-water which would often be neither trifling nor of brief continuance, into the ambulatory.

The clearstory opening which Mr. Fergusson proposes, is accurately described by him as an internal metope; but whether he can make good his appropriation to it of the Greek word *opaion* may be more doubtful. Plutarch, in the life of Pericles, speaks of the *opaion* of the great hall of the mysteries of Eleusis as an architectural work of importance; and if the word is to be applied to roofs and openings of less importance, it must, at least, be appropriated to the perforation of the roof or ceiling, whether connected with a clearstory or not. In a fragment of Diphilus, a poet of the new comedy, we have part of the speech of a youth who says that he is peeping through the *opaion* tile to catch a sight of a pretty girl. The lexicographer Photuis explains this tile as a chimney-pot; such seems a fair translation of his phrase, but its title would apply accurately to the perforated marble tile of the Phigaleian temple.

The section of the restored Parthenon shows the application of the same system to the larger temple, and perhaps under somewhat less embarrassing circumstances. The space at command for the clearstory is but pinched at Bassæ, but the dimensions of the Parthenon allow a proportionally greater height, as some will no doubt say, to play with. The difficulty as to discharge of rain-water remains; and it is open to serious question how far the great work of Phidias would be advantaged by exposure to cross lights from either side. That the naos of the Parthenon had an open roof like a Mediæval basilica, that its construction was largely under obligations to bronze, and that the underside of the marble tiles was exposed, all these and some others are suggestions which give such a wrench to long-cherished, if it must be so, to preconceived opinions and prejudices, that it will not surprise any, unless it may be the accomplished author, if "the boldest holds his breath for a time." The author, indeed, must have some indulgence for human weakness. He himself may well be inspired with confidence in a novel theory from the experience on which he may well be congratulated, that in many another instance he has only had to wait, whether patiently or not, for the lapse of time, to find that conjectures quite as surprising, as boldly hazarded and not less vehemently contested, than these are ever likely to be, have come at last to be accepted quite as universally as any reasonable man can expect in this world a theory to be that is merely reasonable. Students of architecture may therefore congratulate themselves on having among them, on having at their head, a writer who does not spare himself when a crisis occurs in a cause which all have at heart. It may be safely said that the question as to the lighting of Greek temples is brought by this book as near to solution as any question can be, that is only susceptible of absolute decision by the discovery of ancient remains, ancient representations, or ancient literary testimony that admits of no ambiguity. It is not likely, and indeed it is not to be desired, that Mr. Fergusson's conclusions should remain undisputed. The more freely and frankly they are put to the test the better. He himself anticipates that his views may be characterised "ingenious, but improbable"; but, in that case, he is fully entitled to challenge the production of a counter suggestion which, whether equally ingenious or not, has the greater merit of being more probable. For ourselves we have so far endeavoured to hold the balance even, as befits those whose function it is to welcome arguments from any quarter that are likely to advance knowledge by new acquisitions, to diffuse what is already known, or to stimulate curiosity and give tone to healthy and honest controversy.

Surveyorship, Deal.—At a meeting of the Town Council of the borough of Deal, held on the 5th of April inst.; the principal business transacted was the election of a surveyor from the nine candidates, selected at a previous meeting, viz.:—Mr. Buckham (Hereford), Mr. Dryland (Folkestone), Mr. Dunkenfield (Rochdale), Mr. Hills (London), Mr. Wakeham (King's Lynn), and Messrs. Redman, Hayman, Stunt, and Collins (local men). Each candidate appeared before the Council, and was examined as to his general acquaintance with municipal work, road-making, &c. Eventually it was resolved that Mr. Alfred Dryland be elected as Surveyor and Inspector of Nuisances. Mr. Dryland is at present employed as assistant to the Borough Engineer of Folkestone (Mr. A. W. Conquest), with whom he served his articles. There were 100 candidates for the appointment.

ORGAN-CASES AND ORGANS.

THAT so little study should have been given to the subject of organ-cases by the architects and archæologists of the "Revival" is indeed strange. It is true that the Elder Pugin designed very elegant organ-cases for Jesus Chapel, Cambridge, and Ushaw College, near Durham (the latter was never executed), and that several good cases have recently been erected from designs of the late Sir G. Scott, Mr. G. F. Bodley, A.R.A., Mr. Somers Clarke, and the Rev. F. H. Sutton; also that we have had publications upon the subject by Mr. Sutton and others; that papers have been read before the Architectural Association by Mr. Somers Clarke, and Mr. H. W. Brewer, and a drawing of the splendid old organ-case in the Cathedral of Hertogenbosch (Bois-le-Duc), by the last-named gentleman, accompanied by remarks upon ancient cases existing in Holland and Germany, was published a few years back in the *Builder*; yet it may certainly be said that no single article of church furniture has received so little attention, and for this reason alone, if for no other, we gladly welcome such a work as that by Mr. Hill, just now published.* But when we add that the book in question is carefully written and illustrated by nearly forty photo-lithographs, folio size, reproduced from drawings made specially for the work by Mr. Hill himself, and that many of the organ-cases sketched have never before been illustrated, the great value of the book both to the professional architect and the archæologist can scarcely be over-rated. It is, in fact, the only "text book" upon the subject yet published, and thus supplies a want which has long been felt by all who have had their attention called to this very important and necessary article of church furniture.

What, at once, strikes us in turning over the leaves of Mr. Hill's handsomely got-up volume is the extraordinary variety displayed in the ancient designs, the perfectly marvellous originality, and almost endless power of invention displayed by the Mediæval and Renaissance architects in their treatment of the organ-case. In fact, their remarkable versatility and power are nowhere more conspicuous; and, what makes the matter somewhat remarkable, is the fact that nearly all the existing examples date from a period which we are in the habit of regarding as marking the decline of art.

The earliest organ-case supposed to exist in any European church is to be seen at Sion, in Switzerland. Mr. Hill considers that it dates from the close of the fourteenth century. The instrument is small, only about 12 ft. high and 6 ft. wide; the pipes are arranged in two square "towers," and a gable, situated between them. The "shades" are formed by compositions of rather elegant curvilinear tracery. The front of the organ is provided with shutters richly painted, the subjects depicted being Our Lord and St. Mary Magdalen on one side, and St. Catherine kneeling before the Virgin Mary and the Divine infant, on the other. The lower portion of the case is plain in construction, but painted with a kind of scroll pattern. It will be noticed that here, as in nearly all the organ-cases illustrated and described by Mr. Hill, the upper portion of the case is bracketed out at the sides, over the lower portion, or "trunk," of the organ. The next example in point of date is the Church of Alcala de Henares, in Spain. This is a rather larger and more elaborate case than that at Sion. The front is composed of a central tower and two "flats" filled with pipes, and crowned by three open-work spires. Like the Sion example we have here also the shutters or doors, but no decoration is shown upon them. Unlike the Sion case, however, this is not bracketed over at the sides, so that the "trunk" and upper portion of the case are of the same width, and a comparison of the two designs will, we think, convince every one how much the Sion case gains by this treatment. The only other Mediæval case illustrated by Mr. Hill which does not possess this bracketing-out is the grand case of the organ in Perpignan Cathedral. Now, as Perpignan was formerly in Spain, and as these are the only two cases illustrated from that country, it seems probable to us that the absence of this very general feature is a peculiarity of Spanish organ-cases. Mr. Hill speaks highly of Spanish organ-cases, but we must confess that we like the two Spanish examples less than most others given in the book. The absence of the corbelling, or bracketing-over at the sides, gives the instrument a square, heavy, clumsy look.

The cases at Sion and Alcala both enclose very small instruments, but as the size and requirements of the organ demanded greater space, the Mediæval architects were quite prepared to meet the demand upon their powers of invention, and we find towards the close of the fifteenth century the truly magnificent organ-cases of Dortmund and Strasbourg. The former is one of the most valuable examples given by Mr. Hill; it consists of three large semicircular towers, separated by flats. The upper portion of the case very boldly corbelled out at the sides, the pipe shades are finely carved with pierced foliage, and the whole is crowned by lofty open crestings; the trunk is richly panelled and carved, and the whole is supported upon a surprisingly rich wooden gallery. The organ-case is thoroughly Gothic, but the gallery has a touch of Renaissance about it. Mr. Hill considers the two to be of about the same date, but we cannot help thinking that, although the projecting semi-hexagonal portion of the loft may be coeval with the organ-case, the two flat portions at the sides are some half-century later.

What makes the Dortmund case so interesting is the fact that it would exactly adapt itself to our present wants; it could, in fact, contain a moderately-sized organ, just such a one as would be required in an ordinary parochial church.

A few years later in date than the Dortmund case is the magnificent example in the Marienkirche at Lübeck, an immense instrument, 80 ft. high and 40 ft. wide, enclosed in a case adorned with a profusion of splendid tracery, carving, and decoration, filling up the whole west end of the church. We often, nowadays, hear architects complain that they have to accommodate large organs in their churches. Yet in the year 1504, the old German architects or builders were not daunted at having to find room and design a case for an instrument at least four times the size of those over which our present architects raise such difficulties. Mr. Hill very properly does not confine his descriptions and illustrations to Gothic organ-cases, but carries his subject down through the Renaissance period to the year 1740, the latest example, in point of date, being that from the Cathedral of Wurzburg, in Bavaria. The numerous superb Renaissance examples given, must justify the course pursued, even to the most exclusive admirers of Gothic architecture. Grander examples of church furniture than the great Renaissance organ-cases of the Cathedrals of Le Mans, St. Brieuc, and Hertogenbosch, or those from the churches of Argentan, Caudebec, St. Bertrand de Comminges, Augsburg, and Stralsund, could not be conceived, and it is certainly deeply to be regretted that either the opportunity or the ability to design such works appears to be now wanting. As Mr. Hill observes, nothing can be imagined more dismal and wretched, both in point of design and construction, than the general run of organ-cases erected in our churches and music-rooms. The author makes some remarks upon this subject which we will quote in his own words:—

"The present Gothic revival has practically done nothing towards promoting a more intimate knowledge of the true characteristics of these ancient works of art (organ-cases), for the modern Gothic case is nearly always the most miserable caricature of Mediæval work; and as for Renaissance examples, they are almost invariably considered out of place in a Gothic church, and are thus never studied with a view to their being adopted as models for architects of the present day. . . . . Many good organs were built in England during the seventeenth and eighteenth centuries, and good cases were made to enclose them, and yet it can scarcely be denied that, at the present time, the organ-case is one of the most miserable and inconsistent pieces of work that has resulted from the late revival of ecclesiastical art. It is very rarely that any attempt whatever is made to surround the instrument with woodwork of architectural importance. But when this is the case, complete failure is almost invariably the result, through want of knowledge, on the part of the architect, of the true principles which govern the beautiful designs exhibited by these ancient examples of woodwork."

Of course, as Mr. Hill points out, there are others who are still more to blame than architects, and these are those bodies called "organ committees," who, anxious to get all they possibly can for their money, simply accept the tender of that organ-builder "who can *give them the greatest number of stops.*" There are, however, numerous other reasons for the present very unsatisfactory state of things to which we will allude, and the principal one is certainly the present practice of bundling away an organ into a dark hole at the side of the chancel called an "organ-chamber"! As long as the organ was placed in the western gallery. The authorities knew that an organ-case was necessary, and *must be paid for*; but directly the instrument is hidden away in one of those abominations called the "organ-chamber." It is obvious that any ornamentation or carving is simply thrown away, and this has led by degrees to the absurd notion that "a church-organ ought not to have a case at all," and the present four-post bedstead arrangement has come to be looked upon as something very "chaste" and "elegant," instead of being regarded, as it ought to be, as a mean, paltry makeshift; but so attached have some people become to this "four-poster" arrangement, that even when money is given for an organ-case it is too often expended in sticking up angels on the top of the posts, a few wriggles of brass or iron work in between them, and painting the pipes in lollypop patterns. A most ridiculous superstition has seized people that it is *wrong to put a cornice or canopy over the top of the pipes of an organ!* And thus in nearly all new organs we see the tops of the pipes exposed, forming a most hideous outline, and giving the spectators the impression of an instrument in course of destruction. Now, if there is one thing which the ancient designers insisted upon more than anything else, it is that the instrument should be crowned by a canopy or a cornice; and there is no single example of an ancient stationary organ where this feature is wanting. The exquisite Gothic organ-case at Jutfaas, in Holland (of which Mr. Hill gives a remarkably-careful drawing), is crowned by a mass of magnificent canopy-work nearly double the height of the organ itself.

Although in some examples the tops of the pipes are visible, yet they always have a shade and cornice above them, so that the pipes never by any chance whatever form the outline of the top of the organ-case. The reason is evident. An organ-case is supposed to *enclose* an organ, and not to be a rack or stand for the pipes alone. It should be distinctly understood that the cornice or canopy above the pipes of an organ does not in any way injure the tone of the instrument, but, on the contrary, rather improves it, if properly arranged.

The fact must also not be overlooked when considering the difficulties of obtaining well-designed organ-cases, that organists and organ-builders both begrudge every farthing of money spent upon the outside of the instrument. We have often ourselves, when speaking about organ-cases, heard organists make some such exclamation as the following:—"Oh, bother your crockets and cornices, give me a good open diapason on the great, or a fine reed on the pedal!" Of course, this is all very narrow-minded, but we have all heard the expression, "There's nothing like leather."

If we are ever again to have fine organ-cases, one of two things must take place,—either we must return to the western organ-gallery and have the choir and organ in the old-fashioned position, or some other important situation must be found for the instrument. Mr. Statham has proposed a shallow transept, and Mr. Brewer would place the organ upon an open arch between the nave and chancel. Mr. Somers Clarke has placed the organ in St. Martin's, Brighton, in a gallery corbelled out at the side of the chancel, and the arrangement well suits the church in question, but this could only be done in a very wide and spacious building. All those gentlemen who have given special attention to this question agree in denouncing and condemning the organ-chamber, yet we fear it will be years before we get rid of this most unfortunate feature of modern ecclesiastical architecture. Not only has the organ-chamber led to the abandonment of the organ-case, but it has become a most costly substitute for it. People are apt to say, "Yes, an organ-case is certainly a handsome piece of furniture, but then, you see, it costs a good deal of money." Now, it never seems to suggest itself to people who speak in this way, that an organ-chamber also costs a good deal of money. They seem to

* The Organ-Cases and Organs of the Middle Ages and Renaissance. By A. G. Hill, B.A., F.S.A.

forget entirely that the walls, windows, arches, and roof of an organ-chamber cannot be constructed for nothing; there can, in short, be no doubt whatever that the money now expended upon an organ-chamber would amply suffice for a very magnificent case.

Not only are we now neglecting the construction of organ-cases, but we are absolutely, according to Mr. Hill, destroying ancient ones. A remarkably fine fifteenth-century Gothic case, at Rhenan, near Utrecht, has only just been pulled down, and the noble Renaissance organ-case at St. Mary's, Dijon, is being taken away; and even in England, numerous examples of excellent Renaissance work have been destroyed or removed within the last few years. This is the more to be regretted because this country is very poor in examples of old organ-cases. The solitary Mediæval example which we possess is at New Radnor, in Wales, and there are only two or three Early Renaissance cases to be found. They exist at Tewkesbury Abbey and Framlingham Church, Suffolk. Mr. Hill illustrates the organ-case at Gloucester Cathedral, the choir-front of which dates from the year 1579, and is therefore one of the earliest examples remaining in England. Also King's College, Cambridge, which dates from the year 1605, and Exeter Cathedral, 1665. The old organ at Hatfield House, which is contemporary with that of King's College, Cambridge, is mentioned by Mr. Hill and one or two others which were in existence a few years back; but whether they have been improved or "restored" away is doubtful.

We may mention that Mr. Hill has given a list of the stops of several of the most celebrated organs, especially that of Harlem, and also an historical chapter, which is of considerable interest, though this portion of the work is kept down, as the subject has been treated at considerable length by Hopkins and Ranbault and other writers. The fact must not be overlooked that Mr. Hill comes before the public as a thoroughly practical writer, who is able to speak from personal experience, as he is one of the representatives of the oldest firm of organ-builders in this country. Hitherto when artists or archæologists have advocated the external adornment of the organ, and placing the noble instrument in a conspicuous position, they have been looked upon as dreamers,—as men without practical experience, who would sacrifice the inside of the instrument to mere external embellishment; but here is an organ-builder of vast experience, a member of a firm which has supplied our churches and chapels with organs for nearly two centuries, strongly advocating the most minute attention being given to the designing of the organ-case. Surely this ought to convince "practical people" that, even from their own practical point of view, the matter deserves attention. Artists will scarcely need such an argument to convince them that the exterior of a musical instrument ought to be made beautiful; and when we mention the fact that there are organ-cases in existence which are adorned with decorative paintings from the hands of Paolo Veronese, Carlo Urbino, the Holbeins, Burgkmeyer, and Zeitbloom, we have said enough to show that no artist ought to consider it beneath his dignity to paint the outside of an organ.

PUBLIC WORKS.

THE public works of a great nation are at once the badge of civilisation, and the gauge of the height at which that civilisation has arrived. Too often do noble monumental works outlast that wave of progress, the summit of which was marked by their erection, and survive in ruins only as mute witnesses of the greater ruin that has overtaken the institutions which were their contemporaries, and the polities which formed their cradle.

The noblest public works, we can hardly hesitate to admit, are those, of an architectural character, which have been raised by a nation for memorial purposes, or for the maintenance of religious worship. In these, whether reared by monarchs,—as during the many long centuries of Egyptian grandeur,—or by people,—as during the brief and fickle splendour of the Greek republics,—the idea of what we now call economy is altogether wanting. We cannot conceive of a temple of Minerva or of Juno built by contract, any more than we can entertain the thought of advertising for the lowest tender for a dozen copies of the Venus of Milo, "to sample." Sound, substantial, splendid work, on which the architect would only be too proud to inscribe his name, in the confidence that it would go down to posterity, as that of the artist from whom a consummate work had been demanded by the nation, and who had worthily responded to the demand,—such is the highest type of public work. In our day this class of work is rare. Churches and cathedrals,—although we are not so far behindhand with the great church-building ages as was the case fifty years ago,—are rarely now reared as national works; and, with the exception of monuments pure and simple, such as that yet under discussion at Rome to the memory of King Victor Emanuel, theatres and harbours are, perhaps, the only great public works which are now erected at the cost and will of the nation.

But with the subtle change effected in manners and habits by what we call the civilisation of the day, the economic element—hostile as it is to monumental grandeur,—has become a factor in most public works. And when that is the case, it is so sure, sooner or later, to become the principal factor, that it is of the first importance to clear the ground as to the true nature of the economy proposed. How powerful is this influence may be illustrated by the fact that in the past fifty years the English people have laid out 750,000,000*l.* in improving only one kind of public communication. How important it is that the economic problem should be impartially wrought out, is to be understood when we add that the investors have only received 4¼ per cent. on this large sum, at the same time that the corresponding class of investors in France are receiving 5½ per cent. on the equivalent outlay.

It is thus clear that there is room for a public service of no ordinary nature to be rendered by the scientific press, in the investigation and publication of those economical data that really characterise any proposed public work of magnitude. As the man who makes two blades of corn grow where one grew before is a national benefactor, so is the man who conceives, designs, and brings to intellectual birth the project of a new and remunerative public enterprise. And precisely as far as such a man is entitled to public gratitude, so should those be held up to public reprobation who, in hasty greed, or even hasty blunder, lead their fellows into investments which, from the controlling features of the case, must fail in economic remuneration.

Some few years ago it was the fancy that other people could make better use of our money than we can ourselves, that served as the safety-valve, or leakage tap, by means of which we relieved ourselves of any accumulation of wealth. Foreign loans were the favourite investments. Eight, ten, twelve,—how much per cent. did they not promise to pay? How often did we, and some few other honest journals, point out the risk of foreign loans? The risk is over now; for they have pretty well run themselves out by this time. So well has the nature of foreign loans come to be understood, that foreign borrowers are content for a time to hold their peace.

But instead of foreign loans, there has been an attempt to float colossal foreign enterprises,—so colossal, indeed, that they rely for their economic authority simply on their magnitude, or on that of the names of those who advocate them. Thus to dis-insulate England, or to dissever North and South America, would be an enterprise so gigantic that it is taken for granted that it must be an economic success. Who would propose to lay out fifty or a hundred millions of other people's money without the certitude that it would insure a good return? Who indeed? And so, on the strength of just that single argument, the subscriptions of the public are asked for, and to some extent, it is said, received.

We must not forget that a very great stimulus to this grandiose style of asking for money has been afforded by the result of the immense revolution in our mercantile transport that has been effected by the re-opening of the ancient junction of the Mediterranean with the Red Sea. From 1873 to 1882 the total of the traffic receipts on the railways of the United Kingdom rose from 51·3 to 63·8 millions sterling, or by 24½ per cent. During the same period the traffic receipts on the Suez Canal rose from 915,893*l.* to 2,421,835*l.*, or by 26½ fold,—that is to say, twelve times as fast as the former. Again, with regard to the former, the capital increased as fast as did the income, so that the shareholder was really none the better for the great increase of business. As to the latter by the close of 1879 the 500-franc shares were, quoted at 1,320 francs, while the 5,000-franc shares of the "Founders" were valued at no less than 380,000 francs apiece.

It must, however, be borne in mind that it is not a matter of every-day occurrence to open a new route between Europe and Asia. The Suez Canal has been a great success, in spite of, not in consequence of, its enormous and disproportionate cost. The tolls of the world's traffic may pay a good interest on 20,000,000*l.*, but the mere fact of the outlay of 20,000,000*l.* will not insure the receipt of tolls. It is this fact which is so steadily kept in the background by the projectors of some of those colossal schemes of which we desire to elicit a few data before the public are coaxed out of their money.

The Channel Tunnel is one of them. Nothing that has occurred in running the driftways on the French and on the English coast has at all weakened our adverse opinion as to the physical possibility of that project. In this, of course, we may be wrong. But as to the fact that the tunnel, if completed, would never pay a farthing on its capital, there is no room for a moment's hesitation. And therefore the advocates of the tunnel have, not unwisely, been altogether silent on this part of the case.

Again, with regard to the project for the creation of a new Mediterranean Sea, the very magnitude of the undertaking is put forward as perhaps the sole proof of its value. It is probable that English capital will not seek investment in what the French call the "Chotts" of Tunis. But that is not so much what we are now regarding. The question, from our point of view, is,—are the economic results so sure as to justify the demand from the European public, or, for the matter of that, from the French nation, of a large and indefinite sum? There are one or two considerations to which we ask for a moment's attention.

In many parts of the world we see the effects of great geological changes within periods of time that may not, perhaps, have reached back beyond the historic era. The filling up of the former entrance of the Nile into the Red Sea is one of these. The depression of that part of the Jordan Valley now occupied by the Dead Sea to 1,300 ft. below the level of the Mediterranean, is another. The uprising of certain parts of Africa is a third. How closely the elevation of the line of hills that skirt the southern coast of the Mediterranean is connected with that of certain parts of Africa that were once covered with the sea may be in doubt. But we do find, side by side, the low hills referred to, and the hollows or dry bottoms known as the "shattut," from the Arabic word "shatt," a shore. It is the idea of some French projectors to divert the water of the Mediterranean into these shatts, and thus artificially to reverse the change which has been here effected by Nature herself.

We must wait for further details before venturing an opinion as to the physical possibility of such an undertaking. But it may be well to mention one or two points, which will not be affected by the state of the share market. In any attempt to admit a large body of water into a new basin two great and opposing difficulties have to be met. One of them is due to the too rapid, and the other to the too slow, current of water that is produced. If the water is made to run at too high a speed, it will plough up the sides and bottom of the channel, and finally choke it. If it does not run fast enough, the limit of basin that can be filled is restricted.

The evaporation that would go on from the Tunis lake, if made, is considerable. In the same latitude in Palestine, the whole stream of the Jordan is evaporated from the surface of the Dead Sea, and the amount of that evaporation has been estimated at 15 ft. of water per annum. At a constant temperature of 70° Fahr., according to Dalton's table, the evaporation from a still surface of water is nearly 16·5 per feet per annum; and this is increased by any movement of the wind. It will thus be within the mark to estimate the evaporation from the new lake at three mètres (or 118 in.) per annum. This rate of evaporation from an area of 1,200 square miles, would exhaust a supply of 9,000 milliards (millions of millions) of metric tons of water per annum. This is equal to 285 metric tons per second, or six times the average flow of the Thames.

The river thus required for the supply of evaporation alone will be only about a fourth of that

required to fill the before-mentioned area, if we allow a year for that process. To admit a current of 1,430 metric tons per second, at the velocity of flow of 1 ft. per second, would require a channel 715 mètres wide by two mètres deep. And to keep up that velocity the head of water for the distance regulating the flow must be ·01553 ft., which is about the inclination of the upper part of the River Jordan.

"In the neighbourhood of Tozeur," we are now told, "an inlet for the sea to the depressed portions of the desert can be obtained by cutting through intervening land only 9 kilomètres in breadth and 70 mètres in depth, 60 mètres of this depth consisting merely of sand." Allowing the lower 10 mètres to stand perpendicular and the sand at 2 to 1, these figures would give a total content of 515,000,000 cubic mètres of excavation, of which 64,350,000 cubic mètres would be rock and the rest sand. This quantity would, however, be diminished in the ratio in which the flow of the water is increased. Thus, at a velocity of 2 ft. per second the quantity of cutting may be reduced by one-half. But in this case the fall of the channel must be increased to ·06211 ft. per foot. If a rocky channel be made, the speed may be proportionately increased, but can only be so increased by additional fall. For 3 ft. per second the requisite head is ·13975 ft., a fall which it may be dangerous to obtain.

At all events, the first matter for the projectors to clear up is the fall which they are able to maintain in getting through their nine kilomètres of hilly ground. When that is clear, it will be possible to calculate how far the estimate of 500,000,000 of cubic mètres of cutting can be reduced. And then it will be necessary to adduce the returns *per contra* from which the benefit to the capitalists is to be derived. Even at Suez Canal prices for sand excavation, allowing nothing for the extra cost of rock, the cutting above indicated would cost 20,000,000*l*, and such a cutting would certainly cost three or four times as much, per cubic yard, as the canal.

The above is only an instance, although it is a striking one, of the manner in which projects are brought before the public at a venture, and accepted, too often, on trust. What can seem more simple, to the ordinary view, than to let water into a hole? On the one hand is the sea, illimitable in its supply; on the other hand a hollow of so many miles area, say 50 ft. below the level of the sea. It is true that it is six or seven miles off, but what of that? If a gap is cut in the intervening hill, of course the water will flow through. Such is the case presented to the public.

The engineer, however, knows that water will no more flow without the pressure of head than it will run uphill. He knows what that head must be, as matter of theory, and also knows how, in the case of the Ganges Canal, the adoption of the best theory available had disastrous results in practice. He can, therefore, by asking one or two questions as to depth and distance, put points on the i's of the speculator, and distinguish at once between the plausible and the physically impossible. And, such being the case, what are we to think of the wisdom of those persons who would jump at a new speculation without first providing themselves with that impartial scientific advice which, in such a case as we have cited, can at once determine what is and what is not within the limits of physical possibility? The limits of financial possibility should form the subject of subsequent discussion.

The Architects' Benevolent Society.—At the meeting of the Architectural Association on the 6th inst., it was unanimously resolved, on the motion of Mr. J. Douglass Mathews, seconded by Mr. Cole A. Adams, to subscribe ten guineas per annum from the funds of the Association to the Architects' Benevolent Society. Mr. Mathews, in making the proposition, referred to the suggestion contained in the last annual report of the Society that the various architectural societies of the country should be invited to contribute to its funds, and it was in response to that suggestion that he moved his resolution, so that the Association might set an example to other societies. The Association had, in past years, opened subscription lists on behalf of the society, but now that the funds permitted it, it was much the better course to give a fixed annual donation.

WESTMINSTER HALL, PAST AND PRESENT.

LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.

At the usual monthly meeting of this society, held on Monday evening last, Mr. Alfred White, F.S.A., Vice-President, in the chair,

Mr. E. W. Brabrook, F.S.A., read an interesting paper, dealing with the history of "Westminster Hall and the Courts adjacent." It was illustrated by a number of interesting prints, plans, and drawings, lent by Messrs. J. E. Price and Thurston.

Mr. Henry Poole, for many years the Abbey Mason, followed with an equally interesting paper on "Westminster Hall in its Architectural Aspect." In the first part of this paper, which dwelt with the early recollections of the author's boyhood and youth as to Westminster Hall, Mr. Poole said,—Up to 1818 the Courts of King's Bench and Chancery were held in a cancellated wooden enclosure, erected on a raised platform at the south end of the interior of the Hall. It projected nearly 40 ft. from that south wall, and occupied the whole width of the southernmost bay of King Richard II.'s building, which, up to the time of the great fire of 1834, was the southern limit of the Hall, that is, inclusive of the wide piers and arch between, with the large window within them. This wooden enclosure rose to a little above the springing line of the south window. It enclosed two large courts, between which was a passage, reached by a flight of steps, opening into the two courts east and west, with a higher ascent southward beneath the great window, thus connecting the Hall with the Houses of Lords and Commons. For additional access southwards, and on the floor of the Hall were side passages against the walls, through two openings in the thick wall, communicating with other passages, one leading into Old Palace-yard. The inclosure presented a pseudo-Gothic front, answering to what is now called the Batty Langley style of A.D. 1700. In the centre was an arched doorway, and on each side a semi-octagonal breast, having three windows and two stories. Taken altogether, it was by no means bad of its kind. I well remember its demolition in 1820, and afterwards I myself helped to remove the massive flight of steps, which remained *in situ* till the preparations in the Hall began to be made for the coronation of George IV. At and previously to that time the Hall was surrounded on three sides by buildings. At the south end were the Parliamentary buildings. On the east side were the Cloister Court of St. Stephen's Chapel, the Speaker's House, and Court and some official houses. The north front had been cleared of attachments which had once spoiled it. The west side was invested by some ancient Elizabethan buildings used as offices of the Exchequer, and south of them were the Courts of Law, with apartments forming the long western frontage of the King's Bench Record Office. This western frontage had been erected by William Kent, the architect of the Board of Works, about 1740; it was a range of buildings in the Italian style, with a handsome frontage towards St. Margaret's-street, having three bays, each of five windows. It had also a flank façade towards Old Palace-yard, extending to the older front of the Houses of Parliament. At the junction of these façades was a square corner tower with western and southern windows. The great fire of 1834 destroyed this tower and the flank building. Kent's building was evidently designed for subsequent extension northward, by adding a square tower similar to that at the southern end, and a flank building to connect that tower with the northern front of the Hall. This is indicated, so far as the tower is concerned, by a pretty drawing made in 1793, as engraved in the *Gentleman's Magazine*, which shows the frontage as far as Kent had carried it, but leaving an area of about 40 ft. square occupied only by the judges' stables and coach-houses, of which the drawing shows their wooden gates and tiled roofs. This spot became occupied by the intended tower, built by Soane eighty years afterwards. The old Courts of Law inside and west of the Hall had become unfit for the constantly increasing judicial business of the great metropolis. In 1820 Mr. Soane (afterwards Sir John) was appointed by the Government as Architect of the New Courts of Law. He at once made a plan and designed an elevation in the Italian style, and proceeded to carry it out, having probably previously obtained the approbation of the judges and law officers. But this plan and elevation were criticised by some influential members of Parliament. This led to the appointment of a small "Committee of Taste," as it was called, and to a reduction of the plan and an alteration of the design, of which only the northern square tower was retained for the sake of symmetry with Kent's southern tower. The remainder of the elevation was altered from the Italian to the Gothic style of King Richard II. This was thought at the time to be a severe rebuke to Mr. Soane, for it at once led to a demolition of much of the building which he had carried up on his own plan, and in the Italian style. Soane was certainly not the man to bear calmly such or any interference. I well remember seeing him gently thrust aside a chief clerk in the Foreign Office who ventured to make a suggestion while he was planning, with his clerk of works, some important alterations to the building in Downing-street, when Canning was succeeding Lord Castlereagh as Foreign Minister. It is not unlikely (and I think I remember a rumour) that other assistance was obtained by the Committee of Taste for the Gothic elevation beyond the square tower. The elder Pugin was then becoming well known, and as he, about two years afterwards, published a beautiful drawing of the building as it was carried out, it seems probable that this was the original design approved by the said Committee of Taste. This engraving is now to be seen in Crace's collection of prints in the King's Library at the British Museum. Between the back of the buildings of Kent and the west wall of the Great Hall, Soane was required to build the new Law Courts, on a space of about 240 ft. long and 60 ft. wide. With this very limited area, between high buildings on all sides, he overcame difficulties in respect of light, ventilation, and access to the courts, which at the conclusion of the works was a theme of approbation and admiration. All the interior was of the Italian style, and had his own individuality stamped upon it, and it was well suited to the purposes and dignity of the courts, although it seems to have had few imitators. His models and drawings were excellent. Many of the former of the most refined character I have seen and admired in the works of Mr. Palmer, the modeller and plasterer of Smith-square, and also his models for the grand royal entrance to the House of Lords, which he executed only a few years afterwards. Mr. Soane began by making several doorways in the western wall of the Hall, opening into a corridor outside of that wall, extending the whole length of it, and under the arched flyers between the attached buttresses and the wall. In connexion with this corridor he built, most ingeniously, eight courts on the ground-floor, with other courts and rooms above. The six large buttresses sadly obstructed his operations, but he managed to retain them and to case them in as walls. In the formation of the long corridor the whole outer surface of the western wall between and above the doors was lined with thin ashlar. Wherever an ancient Norman buttress came in the way, that also was cased with thin ashlar. By this means a series of piers were made, and at their tops were made as abutments for large arches segmental and pointed. Thus was gained a wall surface consistent with the ancient work, and while it appeared as a wall arcade, it served as a support to the flat which covered the corridor. In some cases the Norman buttresses have had their lower parts cut wholly away, and the parts above have had massive stone corbels inserted to support those upper parts. In one or two instances the Norman buttress has wholly disappeared.

In the second portion of his paper, which dealt with the clearance of the site of the old Law Courts and the prospects of the restoration of the west side of the Hall, Mr. Poole said,—The removal of the buildings on the west side of the Hall has revealed parts of the long-hidden detached buttresses of King Richard II. Five of the flyers of the connected-arch buttresses appear to be in fair preservation and tolerably complete. The restoration needful will be considerable; but it may probably be effected without the removal of any one of the structures. The pinnacles of all all are entirely lost; but Brayley and Britton's excellent work, "The Palace of Westminster," shows a corresponding buttress then existing in the Speaker's Court, on the east side of the Hall, with the pinnacle included; this buttress was necessarily removed

by Sir Charles Barry, as it was useless and in the way of his works of the new Palace. At present none of the lower parts of these buttresses are exposed, for the contractor has not been allowed to approach too near to the ancient structure. Of the five Norman buttresses, which were intermediate with the detached buttresses of Richard II., only two remain; and of the others against which the arched flyers abutted the lower parts have been destroyed, and their upper parts have been left, and in most cases converted into corbels through which the flyers interpenetrate and are incorporated. It is satisfactory to find that the archivolts of the flying-buttresses are in good condition, and that their springers are exposed. The archivolts rest on moulded corbels, under which are grotesque animals with wings or legs, and seem to be almost perfect, or requiring but little repair. It may be hoped that the sixth, the southernmost detached buttress, will be found in part, at least its footing. One of the doorways cut through, that under the second window from the north end has been abandoned, and so the wall-surface in the Hall having been restored, the opening has been concealed. The question naturally arises now as to what will be done with the large area about to be cleared, and what will be done towards the completion of the wall and other parts. The external display of the windows on the western side, joined to the view of what of the five arched flying buttresses is seen, is already very grand; and when the windows are in the evening dimly illuminated from the gas-lights within the Hall, the effect is most pleasing. The parapet of the wall has been lowered, in former times, to the greatest extent possible; it is now apparently but a little above the gutter, and it is covered by a common coping of stone. Thus the enormous surface of the roof of slate has become fully exposed, from ridge almost to drip, except that there are the modern excrescences of dormer windows, which, although useful in throwing light into the interior, and on to the timber-work inside the roof, are, whether seen from the outside or from within, inconsistent and intrusive. The absence of a parapet is the cause of this unsatisfactory appearance of the building on both west and east exteriors. The authority for a proper restoration of the parapet is to be found in Hollar's prints. In these the parapets are shown adorned with grand battlements, resting evidently on a bold string-course of stone. These two features at once give propriety as well as beauty to the roof, and there seems to be no alternative but to carry out that restoration. The same old drawings show that the ancient roof was covered with lead in wide sheets, with roll-junctions. This fact is confirmed by a censorious letter, written in 1750 to the *London Gazette*, protesting vigorously against the removal of the lead from the roof of Westminster Hall and the substitution of slate for it, as proposed by the Board of Works. Nevertheless, in August of that year the lead was removed, and its weight of 10,000 pounds was reported. The writer in the *Gazette* charged the authorities with bad motives. The restoration of the Norman buttresses,—or, rather, those which Richard II. built in and covered, but reproduced when he built the six detached buttresses and their adjuncts,—should also form a portion of the new work. The full restoration of the wall must, of necessity, take place, inclusive of the filling with ashlar all Soane's doorways, both outside and in. It might not be inopportune to retain one of these doorways as a western access. A similar access to the nave of the Abbey from the north green there, is an improvement to the front towards the public way. The full development of the six detached buttresses and of the ten Norman buttresses will necessitate the lowering of the ground,—down, perhaps, to the level of the floor of the Hall,—thus undwarfing the western wall and restoring its original height and dignity. The effect of a sunken garden or grass-plot there will be quite as pleasing as that which surrounds the Natural History Museum at South Kensington. There are many, perhaps, who would prefer to abolish the dormer windows because they are modern and intrusive. If they can be hidden outside to a great extent by the proposed battlemented parapet it will be well; but the interior of the Hall requires as much light as it has at present, and the beautiful roof was, I remember, brought pleasantly into view when the diffused light of these twenty-four dormers was gained. The beautiful heraldic stained glass of Willament, in the south window, has darkened that end of the Hall by diminishing the daylight to more than half its quantity.

In the third part of his paper, Mr. Poole dealt with Westminster Hall as built by Rufus and altered and added to by Richard II. He observed that the appearance of the Hall when built by King William Rufus, may have been of the simplest character, with the present walls on the four sides, with triplicate doorways at the north end, the central a grand one. When the north end was examined by Mr. Sydney Smirke indications of this triple entrance were seen. There were in each side wall twelve large Norman windows, nearly in the positions of the present windows; and between these were twelve small windows, making altogether forty-eight. In the repairs carried out by Sir Robert Smirke, assisted by his younger brother Sydney (afterwards Sir Sydney), the interesting remains of the windows were brought to light. Mr. Sydney Smirke wrote a very elaborate account of them accompanied by drawings, all of which have a place in the *Archæologia* (of 1834, '5, and '6). Every window was of the Norman type having a circular head and pillared jambs. The large windows had annulets in the middle of their jamb pillars. With the lower range of these pillars the small window-pillars were coincident. Each jamb of the small windows had two pillars in front and two behind them (see illustration, plate 40, p. 492, Brayley). The interior of this window-wall was pierced by a low passage, arched over, continuing through all the piers. This passage may have been continuous also throughout the north and south ends, for at the south-west corner there existed indications of a Norman arch, which may have been one of a range of windows at the south end. How the Hall of Rufus was covered there is no evidence. Shingles were used in other parts of the palace. Mr. Sydney Smirke has suggested that the roof was in three spans, supported by pillars. In such a case the middle span would be both wider and higher than the sides. The market-halls of Rouen, of a little later date, are thus constructed, the intermediate floor and also the roof being upheld by a range of pillars. The two Smirkes sought earnestly for some signs of supports under the floor, but with no result.

An interesting discussion followed, the speakers being the chairman, Mr. Thomas Lambert, F.S.A., Mr. J. E. Price, F.S.A., and other gentlemen, and the thanks of the meeting were accorded to the readers of the papers.

THE DESTRUCTION OF THE NATIONAL THEATRE IN BERLIN.

Within the space of an hour, between twelve and one o'clock on the morning of the 4th inst., the National Theatre, the largest edifice of the kind in Berlin, was completely destroyed. The fire, which broke out at a time when there were fortunately only two or three people on the premises, waged with such violence that the Berlin Fire-brigade, though quickly summoned, was powerless to save either the building or any of its contents, and all they could do was to turn their hose on the neighbouring houses to protect them from the flames, which they succeeded in doing. The conflagration was at first attributed to an incendiary, as the precautions which had been taken against fire were believed to be so complete that danger from such causes was thought to be practically *nil*. The inquiries which have been instituted have, however, shown that this confidence was ill-founded, and that the conjecture or suspicion of the disaster being due to arson was equally baseless. The fire arose from the following circumstances:—On the roof of the theatre above the loft and soffits there were four safety windows or apertures, with lids, which were constantly kept closed by a mechanical arrangement with counter-weights. These worked automatically, so that in case of an outbreak of fire the lids would open of themselves, the object being to let out the smoke, so as to save the actors and others who might be on the stage from being suffocated. In the morning of the fire one of these apertures had been opened for the sake of ventilating the theatre. Close to the apertures there was a chimney, which runs up from the fireplace of the kitchen of the theatre. It is believed that as the fire was alight, some sparks flew from the chimney into the open aperture, and so set the soffits on fire, as the loft under the roof was all of very dry timber, which was unprotected by impregnation with any uninflammable preparation, or by any other means. This view is supported by the evidence of witnesses who saw the smoke and flames at the first outbreak of the fire issuing from one of the apertures in question. The iron curtain which, since the Ring Theatre fire of Vienna had been fixed in front of the stage at the National Theatre, was down at the time of the fire, but proved of no practical service in arresting the flames. There is no doubt the fire broke out in the stage half of the theatre, and the progress of the fire was so rapid and the heat so intense that the iron curtain was unable to withstand it. The metal was partly melted, and in a very few minutes the entire auditorium was in flames. Unfortunately several collections of books, pictures, manuscripts, and theatrical requisites, which can never be replaced, were destroyed, along with everything else in the theatre. The building was well insured, and the loss, about 12,000*l*., will fall on the Berlin City and the Magdeburg Associations.

THE CAUCASIAN MUSEUM IN TIFLIS.

In September, 1881, the fifth Congress of Archæologists of the Russian Empire was held in Tiflis, an ancient Asiatic city, known since the time of Cyrus, and now capital of the Russian province of Trans-Caucasia. The Grand Duke Michael, the Governor-General, had given 15,000 roubles for excavations in preparation for the Congress, and a nearly equal sum was granted for the entertainment of visitors from a distance, who came in considerable numbers, and who were all lodged as guests in the Grand Duke's palace. To this Congress the Caucasian Museum owes much of its present importance. A new story has been added to the extensive museum building, and the interior has been furnished and decorated at a cost of 22,000 roubles. Some of the interior decorations, such as the frescos in the great entrance-hall and the large ethnographic groups, deserve more than a passing notice. The director of the Museum, Dr. G. Radde, says:—"One of the greatest difficulties I had to solve was to find what would be the most appropriate decorations for the grand staircase hall. I decided in favour of having Persian ornamentation, and some large wall-paintings consisting of scenes derived from ancient Caucasian legends. I also desired to have two historically celebrated personages faithfully copied from the frescos in the Gelathi Monastery. These were King David the Renewer, and the Empress Thamara." Dr. Radde obtained sketches from painters in Düsseldorf, Vienna, and Rome, for the subjects of a legendary character, and eventually the sketches of Herr Franz Simm, of Rome, were accepted. The artist arrived during April in Tiflis, and in the course of ten weeks, with the assistance of his wife, who is also devoted to art, he completed the whole of the frescos in the grand hall. The subjects of these paintings are as follow:—(1) Prometheus chained to the rock, attacked by the eagle, and bewailed by the Oceanides; (2) Noah planting the vine; (3) The arrival of the Argonauts in Colchis, and Jason and Medea in the Temple of Hekate; (4) Two Amazons; (5) The Empress Thamara and King David the Renewer. These paintings, though executed in so short a time, are admired as excellent works of art, both as regards colouring, composition, and fidelity to tradition.

One of the most valuable sections of the Museum is that of the large ethnographic groups, which present a complete picture of the very numerous and various races of men who have peopled the Caucasus regions from the earliest periods down to the present day. Altogether the existence of this Museum, and the assembly of a scientific congress of Europeans in Tiflis, testify to the gratifying progress civilisation has been making in that part of Asia in recent years. Indeed, visitors to Tiflis agree that the handsome new buildings rising up there impart to it the appearance rather of a European than an Asiatic city.

A Free Library for Darlington.—At a meeting of the town council of Darlington, a letter was read from Sir Joseph Pease, M.P., offering to erect a building for a free library at a cost of 5,000*l*., and to furnish the same provided the Free Library Act were adopted.

FURTHER NOTES AT THE BUILDING TRADES' EXHIBITION.

To the particulars of this exhibition given in our special supplement last week we now add the following brief notices of some exhibits which, for want of time and space, we were precluded from mentioning last week.

MESSRS. R. F. DALE & CO. (*Bay* 1), of Bear-lane, Southwark, are exhibitors of plumbers' brasswork of good quality, as well as beer-engines, pumps, and water-closets. The latter include wash-out and valve closets, and pan-closets with earthenware containers. A specialty here exhibited, the "European" side-outlet valve closet, has some good points. Syphon and other water waste-preventing cisterns, baths and bath fittings, lavatories, and urinals, go to complete a large and useful display.

THE EUREKA CONCRETE COMPANY (*Bay* 6), of West Kensington, show some good work in their material, including steps, area-copings, dormer windows, panels, and balusters,—the moulded work coming out very sharp and clean. A red concrete door, the panels of which are decorated with "Lincrusta-Walton," and a staircase landing, 9 ft. by 6 ft. 9 in., by 5 in. thick (and which is stated to be without any stiffening-iron), are amongst the other items shown at this stand.

MESSRS. JOSEPH KAYE & CO. (*Bay* 7), of High Holborn, exhibit their patent locks and door furniture, which appear to be simple and efficient, and in other respects worthy of notice.

MESSRS. T. & W. FARMILOE (*Bay* 9), of Westminster, exhibit plumbers' brasswork of their own manufacture, in great variety and excellence. Their patent "Westminster" valveless water-waste preventer is simple in construction and efficient in action. The "Simplex" valve-closet of the same exhibitors, and their "Elastic" valve-closet, to use with water-waste preventer, are worthy of notice. The same may be said of Harsant's patent "Eccentric" rubberless water-waste preventer, for use in conjunction with closet apparatus. This contrivance consists of a sort of stirrup arrangement, which, on the handle being pulled up to its full height, releases the valve-lever and automatically turns off the water. A bellows-regulator is also provided to this closet. Some deep-well pumps, one or two baths, and several lengths of drawn lead 4-in. and 6-in. soil-pipe, made in 12-ft. and 14-ft. lengths (unusually long), are among the many other useful exhibits of this well-known firm.

MR. SAMUEL OWEN (*Bay* 11), of Fann-street, Aldersgate-street, shows bath-fittings and other brasswork, and the "Comfortable" bath, which is of peculiar form.

MESSRS. E. & C. BRABY (*Bays* 12 and 13), of Belvedere-road and Kilburn, have a large display of good and useful chimney-pieces in marbles and enamelled slate. Among other manufactured slate goods they exhibit spirit-vats, butter-blocks, tanks, filters, a vegetable-dresser (for washing and preparing vegetables required in an hotel or other large establishment), shop fascias, &c. They have also on view a good assortment of bricks, tiles, slates, stoneware pipes, sinks, &c. The red facing bricks from the East Acton brickworks are good in colour and texture, and the same may be said of the red and white Suffolks, and of the ridge and other tiles exhibited. At the same stand are shown some excellent specimens of work done with Howe & Co.'s Carlisle plaster of Paris, for which Messrs. Braby are the sole London agents. This plaster, we are informed, is manufactured in quite a different way to the ordinary method. It is slow in setting, and guaranteed not to "give" in the slightest degree when once "set." Its capabilities are shown by the very beautiful casts exhibited from natural leaves, fruits, &c., and from the Elkington "Victory" shield and other *objets d'art*, made in this material for the authorities of the South Kensington Museum.

MR. PAUL PFLEIDERER (*Bay* 16), of Upper Ground-street, Blackfriars, shows a "Universal" kneading and mixing machine in operation, making putty for Messrs. T. & W. Farmiloe. A slight variation in the form of the blades is made when the machine is used for bread-making. It is applicable for use in the manufacture of printing-ink, lubricating grease, emery-wheel composition, and of carbons for the electric light. A useful and simple sifting and straining machine is shown at the same stand.

THE SNEYD COLLIERY AND BRICKWORKS COMPANY (*Bay* 20), of Burslem, exhibit white and coloured glazed bricks, characterised by excellence of quality and trueness of shape.

THE WOOLPIT BRICK AND TILE COMPANY (*Bay* 23), of Woolpit, Suffolk, and Moorgate-street, exhibit some very good dark and light red facing bricks, red and white rubbers, hard red facings, and red moulded bricks. They will all bear inspection. Some white and salmon-coloured paving tiles shown at this stand are also worthy of notice by visitors.

MR. JOHN MATTHEWS (*Bay* 24), of the Royal Pottery, Weston-super-Mare, shows Poole's patent bonding-roll roofing tile, in red and dun colours. This tile is well worthy of attention, and to enable visitors to judge of its effect a specimen of roofing laid with it covers the standing-ground allotted to the exhibitor.

MESSRS. THOMAS SMITH & CO. (*Bay* 25), of Canal Potteries, Old Kent-road, deserve a word or two of mention in addition to what was said of their exhibits last week. Among their sanitary stoneware goods worthy of attention is their improved ventilating and syphon trap, with inspection-hole and cap and socket for ventilating-pipe. A stoneware street gully, with catch-pit, an improved yard gully, Herbert Jones's patent drain-pipes, chemical apparatus in stoneware, and water-filters, are among other items which may be singled out as specially well worth notice.

MESSRS. A. LUSTY & CO. (*Bay* 26), of Elthorne-road, are exhibitors of wood-working machinery and engineers' sundries. At the same stand Mr. S. Ransom shows models and specimens of some very good staircase work.

MESSRS. W. UDAL & CO. (*Stand* A 5, B 47), of Birmingham and Charterhouse-street, show some door and cabinet brasswork and Bruce's fanlight-opener, a simple and effective apparatus.

MESSRS. YOUNG & BUSS (*Stand* A 6, B 46), of Blandford-street, are exhibitors of electric bells and burglar alarms; they also show a useful electric alarm for fixing underneath a door-mat or on the threshold of a shop, so as to give warning when a person enters.

MR. GEORGE PORTER (*Stand* A 9, B 43), of Cullum-street, shows his patent pneumatic bells, in which the use of india-rubber bags is dispensed with.

MR. JOHN STONES (*Stand* A 12), Ulverstone, exhibits a Stones' patent safety hoist, for prevention of accidents arising from persons falling down well-holes, revolving shutters or sliding doors being employed to close the openings on the cage leaving them, the shutters or doors being worked automatically with the hoists. This invention can be applied to any number of openings on the same or different floors of new or existing hoists, worked by hydraulic, steam, gas, or hand power.

THE SILICATE ZOPISSA COMPOSITION AND GRANITIC PAINT COMPANY (*Stand* A 13, B 40), of Fish-street, exhibit samples of work showing the applicability of their materials for use under varying conditions.

THE GALVANO-MERCURIAL SILVERING COMPANY (*Stand* A 17, B 36), of Wells-street, Hackney, exhibit reflectors silvered by the galvano-mercurial process, and "albatrine," a species of opalescent glass for use in lieu of white glazed tiles.

MESSRS. SMITH & TURNER (*Stand* A 26, B 27), show, among a variety of other things, Ben. Turner's patent adjustable regulating door-spring. Many door-springs hitherto made are liable to get out of order if allowed to throw the door beyond the half-circle, to prevent which a stop is generally placed on the floor, which when the door is thrown open strikes the door, produces a jar, and causes a fracture. Ben. Turner's patent adjustable regulating door-spring throws the door considerably beyond the half-circle; there is no friction, consequently little wear. The spring cannot be wrenched or jarred, therefore it cannot be broken; it is stronger when closed, and gradually loses strength as the door is opened; can be made to stand open at right angles if required: it is most easily fixed, and can be regulated to any strength, and adjusted to any centre, and the whole of the inside taken out without unhanging the door. Ben. Turner's "improved adjustable slam spring" and "improved ball door porter or holder" are handy contrivances. The great advantage of the slam spring is, that it can be adjusted to any tension, so that when the door falls-to it prevents noise and holds it firmly when closed. In using the ordinary slam spring the door will often either stand a few inches open or come-to with a bang; all this is obviated by the adjustable screw being tightened or loosened as required. An "improved patent water bar," exhibited at this stand, is worthy of especial notice.

MR. ALFRED NEWMAN (*Stand* B 45), of Maddox-street, is an exhibitor of some very good wrought-iron work. Most of the articles shown at this stand are characterised by much ingenuity, albeit suitability, of design, and the workmanship is excellent in character.

THE UNIVERSAL VENTILATING AND SANITARY ENGINEERING COMPANY (*Stand* B 54, C 92) exhibit Stevens's patented galvanised and terra-cotta chimney-tops, for the prevention of down-draught. These appliances, we understand, are now used in all station-buildings of the Metropolitan Police force. Stevens's exhaust ventilators, made upon the same principle, only with a vacuum chamber larger in proportion to the size of the shaft than is the case with the chimney-top, is simple in construction and efficient in action, judging by the testimony of the users. Stevens's drawer inlet-ventilator is an admirable appliance for admitting external air through a wall in larger or smaller volume, subject to easy regulation. We spoke of its merits when it was shown in a former exhibition.

MESSRS. EWART & SON (*Stand* B 63, South Centre), of Euston-road, make a very good show of ornamental stamped and moulded zinc-work for cornices, gutters, crestings, &c. There are some good finials in the collection, and the ventilating ceiling-plates shown by the same exhibitors may be, under proper conditions, of great service for purposes of ventilation.

THE BOWER-BARFF RUSTLESS IRON COMPANY (*Stand* B 73, C 76), are exhibitors of various specimens of cast and wrought ironwork protected by the patented processes of Professor Barff and Messrs. G. & A. S. Bower. There now seems to be some hope of these valuable processes coming into general use, for we note that several large firms are using them, and we learn that the Company is now erecting furnaces in Southwark which will shortly be in operation to treat general ironwork for the London trade.

MESSRS. JOHN WARNER & SONS (*Stand* C 97, D 122), of the Crescent Foundry, Cripplegate, have a good representative collection of their manufactures, including brass lift and force-pumps, cottage pumps, baths, lavatories, and water-closets. Among their specialities in the last-named line we may mention their "Villa" closet, their "Spring-valve" closet, and a pan-closet with earthenware container. Wash-out closets are also shown on this stand, as well as specimens of plumbers' brasswork.

THE PATENT WATERPROOF PAPER AND CANVAS COMPANY (*Stand* C 109, D 114), of Willesden, have what is undoubtedly one of the most interesting exhibits in the hall, viz., their "Willesden Paper," in some of its numerous applications for external and internal work. This material, which is made in several thicknesses, in rolls of continuous length, and 54 in. wide, is applicable for external roofing in lieu of galvanised iron or felt, for under-lining slates, tiles, &c., for fixing against damp walls, and for many other purposes. It is, of course, waterproof, and we are assured that many structures covered with it have stood exposure to all weathers for the last six years without injury. It is claimed for it that it is the cheapest of all roof-coverings, as no boards are required, the paper being battened down directly upon the rafters. One of the uses of the material is for water-pipes, some of which, destined for the Cape Diamond Fields, are exhibited. We may add that the two large central transepts (90 ft. by 50 ft.), and all the covered ways, as well as the large fish-market (100 ft. by 50 ft.) of the Great International Fisheries Exhibition to be opened at South Kensington next month, are roofed with the "Willesden paper."

THE INDESTRUCTIBLE PAINT COMPANY (*Stand* D 129, E 148), of Cannon-street, exhibit their well-known preparations, including their patent enamel paint, patent stone solution, and indestructible paint. The enamel paint can be used so as to dry either with an enamel or glossy surface, or "flat." It has been very largely used on public works and in hospitals and other buildings; we name the Holborn Viaduct and the new Hospital for Consumption at Brompton as instances. Browning's patent enamel solution, for the preservation of stone,

brick, and cement work, is colourless, and appears to have successfully passed the ordeal of tests extending over a period of ten years. It is claimed for the indestructible paint that it resists the action of alkalies and acids. It appears to be admirably adapted for iron structures, roofing, gas-lamps, &c., but we notice that it is made in three colours only,—bronze-green, chocolate, and black.

MESSRS. JAMES SLATER & Co. (*Stand* D 130, E 147), of High Holborn, exhibit some gas cooking ovens, gas-heated circulating boilers, gas-heating roasting ovens, and hot-plates, suited to the needs of large establishments.

MESSRS. STANLEY BROS. (*Stand* E 142), of Nuneaton, are exhibitors of some very good Staffordshire blue goods, together with red, brown, and buff tiles, ridges, and finials. These goods are all self-coloured, being made of four different strata of clay. The colour is in all cases good, and the shapes are true. Vases, terminals, and chimney-tops are shown in each colour. A useful air-brick, with the openings of greater area on the interior than externally, is shown at this stand; and among the stoneware goods is a simple ventilating sewer-gas trap.

MESSRS. H. C. WEBB & Co. (*Stand* E 140), exhibit specimens of Webb's patent "diachromatised" woodwork, in the form of floor tiles or blocks, door-panels, &c. The patterns extend right through the surface of the wood, and the process appears to be one of much importance, and to have advanced in exactitude since it was first exhibited a year or two since.

MESSRS. BROAD & Co. (*Stand* E 154 and F 191), have a useful show of Oldham and other bricks, including Suffolk reds, hard facing-bricks, and red diapers, string-courses, medallions, moulded bricks, and blue Staffordshire goods. Smith's patent dovetail brick, with dovetail recess for the insertion and building-in of wood plug to which to attach joinery work, is useful. Some good quarry tiles, with smooth face, are shown by these exhibitors. Broad & Co.'s improved inspection gully, made in enamelled stoneware, and with galvanised iron grid, deserves the attention of visitors. It has an inspection inlet enabling the trap to be easily cleansed, and affording ready access to the drain. The movable cap is luted or sealed with Russian tallow or some similar substance when *in situ*. The bottom of the trap is rounded, so as to afford an easy flush.

Messrs. RITCHIE & Co. (*Stand* E 159, F 186), of St. Swithin's-lane, show their now well-known patent "'Lux-Calor' hygienic condensing gas-stove," which is well spoken of for use in conservatories and other situations; that it is innoxious to vegetable life appears to be well attested.

MESSRS. A. L. MOORE & Co. (*Stand* E 162), of Southampton-row, Holborn, show some specimens of stained glass executed by them, and a number of drawings of stained glass and other decorative work carried out by them.

MESSRS. FREDK. JONES & Co. (*Stand* E 164, F 182), of Ryland-road, Kentish-town, are exhibitors of slag wool or silicate cotton, the indestructibility and non-conducting properties of which render it applicable to a large number of uses, many of which are illustrated by the exhibitors.

MESSRS. C. KITE & Co. (*Stand* F 181), of Chalton-street, Somers-town, exhibit Kite's patent exhaust roof ventilator, which appears to be very efficient. Kite's chimney-breast ventilator, for extracting the vitiated air from rooms, is constructed on the principle of the exhaust ventilator, but is let in through the wall of the chimney-breast so as to have an outlet into the flue. A working model, showing this and other ventilators in action, is worth attention. Kite's fresh-air inlet ventilator, and the inlet and exhaust ventilators for soil-pipes, by the same maker, also demand notice, as well as his patent chimney-caps, which have been largely used in public buildings.

THE MADELEY WOOD COMPANY (*Stand* E 167, F 178), of Ironbridge, show some very excellent Broseley roofing tiles, crests, finials, &c., also buff facing bricks, paving squares, &c., which will commend themselves to all who examine them.

MESSRS. THOMAS ANDREWS & SON (*Stand* E 169, F 178), of East Molesey, show an American walnut chimney-piece and over-mantel, and a piece of staircase work. These, and some sashes and framed doors which are exhibited by the same firm, are well made.

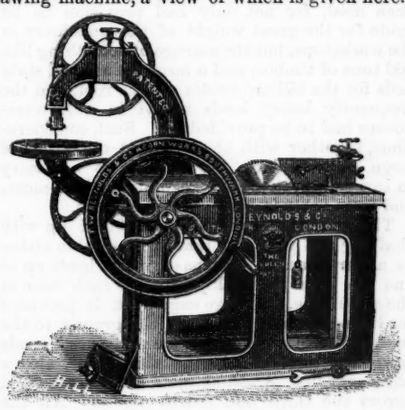
MESSRS. GEORGE WALLER & Co. (*Stand* F 174), of Holland-street, Blackfriars, exhibit many of their well-known specialities in wrought and cast ironwork for sewerage and other purposes, such as ventilating-grids, flushing-boxes, gully-grates, penstocks, and manhole-covers, such as Latham's patent manhole-cover, which we have noticed on a former occasion. Soil-pipe ventilators, inspection-boxes, street orderly-bins, and many other appliances needed by sewerage engineers and borough-surveyors (not to omit mention of a complete set of gully-cleaning tools), are shown by this firm.

MESSRS. VERITY BROS. (*Stand* F 172 and F 172A), of Call-lane, Leeds, show mortising and band-sawing machines, but they make a speciality of their window fasteners, openers, and fittings. Among the latter is a very good casement stay. Their patent interlocking fanlight pivot, their patent chain hopper or fanlight opener, their patent opener for lantern lights, and Waller's patent rack and worm motion skylight-opener, are all very useful appliances, and may be seen and tested in action.

MESSRS. CHARLES DRAKE & Co., LIMITED (*Stand* F 194, G 232) are exhibitors of their patented specialities in concrete work, including their marble mosaic concrete, which is shown in varied applications, one of the most notable being as a moulding or frame for the proscenium opening of the new "Grand" Theatre, Islington, now being erected on the site of the burnt-down "Phiharmonic."

MESSRS. E. P. BASTIN & Co. (*Stand* F 198, G 228), of West Drayton, show their folding hack-covers, for brickmakers, also brick-moulds and other appliances used in the manufacture of bricks.

MESSRS. F. W. REYNOLDS & Co. (*Stand* 269), of Acorn Works, Blackfriars, exhibit, as we mentioned last week, a large collection of woodworking machinery, including the new "Queen" sawing machine, a view of which is given here.



The engraving did not reach us in time to accompany the detailed description of it given by us last week (see Supplement, p. 479). The machine is specially designed for hand power, and is self-feeding, so that one man can work it.

MESSRS. GEORGE RICHARDS & Co. (*Stand* 244, *South Side*), of Manchester, have a large display of woodworking machinery in operation, including a high-speed jig-saw, making 1,200 strokes per minute, and a band-saw machine with "phantom" or "spider" wheels, somewhat similar to those used for bicycles. Most of the wood-cutting machines shown by these exhibitors appear, from a cursory examination, to be simple in design and solid in construction.

MESSRS. R. W. HALE & Co. (*Stand* 245), of Chalton-street, Somers Town, exhibit some good perforated zinc-work and a few miniature zinc flats showing some improved methods of laying zinc roofs with lock joints. These should be seen by architects and builders.

MESSRS. HOPKINSON & PRINCE (*Stand* 248), exhibit the "Wordsworth" gas-engine (one of the latest things in this line) and some good wood-working machinery.

MESSRS. BUTTERS BROS. (*Stand* 249), show some good and useful plant for builders and contractors' use, including a concrete-mixer capable of mixing 100 cubic yards per day of nine hours.

MESSRS. DOULTON & Co. (*Bay* 51 *in Gallery*), of Lambeth, exhibit their radiating tile stoves and combined radiating tile stoves and fire-grates. A glazed terra-cotta mantelpiece, with stove arrangement in which no iron need be used, and the patent open grate, entirely of clay, are very good in effect, and may be fixed in any existing chimney-opening. This firm have also on view some wooden mantelpieces of good character, with tile-decorations.

THE ALBION CONCRETE WORKS (*Bay* 62 *in Arcade*), of Haymerle-road, Old Kent-road, are exhibitors of some good red concrete moulded work for cornices, cills, string-courses, lintels, &c.

MESSRS. JOSEPH BRINDLEY & Co. (*Bay* 64 *in Arcade*), show enamelled slate chimney-pieces and other goods in the same material, in great variety and very good of their kind.

MESSRS. S. OPPENHEIM & Co. (*Bay* 71 *in Arcade*), of Hainolz, near Hanover, have on view specimens of their glass, flint, and emery paper and cloth; the paper made by this firm is in continuous rolls, and is very good and even in quality. Messrs. Muller, Uhlich, & Co., of King William-street, are the agents for the manufacturers.

MR. ALBERT M. WOOLF (*Bay* 72 *in Arcade*), of New Bond-street, exhibits Schlesinger's firestone paper and cloth, which is asserted to be twice as durable as the best glass paper.

MR. WILLIAM BRASS, JUNIOR (*Stand* 284, *King Edward's Hall*), of Old-street, exhibits his recently-patented reflecting pavement, stallboard, and other lights, for the illumination of basements, cellars, &c. The invention is the outcome of an attempt to supply a want which the inventor had experienced, and as a practical builder he has been able to meet the want in a very simple way. Mr. Brass's improved pavement light consists, in brief, of a strong iron grating, glazed with white crystal glass, 1 in. thick. Beneath this the reflectors (which consist of long narrow strips of silvered fluted glass) are arranged one behind another, and hung on centres. They are simultaneously actuated by cords, rods, or other appliances so as to be readily adjusted to any desired angle. This invention should be looked at by visitors.

In conclusion, we may note that we hear from Mr. Shrapnel, the energetic secretary of the exhibition, that up to the time of our going to press this exhibition has been much more largely visited than either of the three Building Exhibitions which have preceded it. The exhibition will remain open until ten p.m. this Saturday, the 14th, and is to be visited in the afternoon by the Lord Mayor and Sheriffs, in state.

EDINBURGH ARCHITECTURAL ASSOCIATION.

ON the 7th inst. about fifty members visited the interesting Collegiate Church at Seton. The features of the structure were fully described in a paper prepared by Mr. Hippolyte J. Blanc, architect, Edinburgh, and its details compared with similar work existing in various parts of Scotland. The edifice was afterwards carefully examined. The company next proceeded to the ruin of Preston Tower. The keep of an ancient fortalice, its origin is involved in obscurity, but Sir Walter Scott supposed it to have been an outpost of the Earl of Home in those remote times when that family ruled with princely authority over the whole south-eastern district of Scotland. The castle to which this keep belonged was burned by the Earl of Hertford in 1544, and again in 1650 by Oliver Cromwell, after the battle of Dunbar. Preston Cross, an interesting erection in the immediate neighbourhood, said to have been acquired by the Chapmen of the Lothians in 1636, and recognised by their descendants still as a centre of merrymaking and interchange of salutations every year on the 1st of July, was examined, and its features described; after which the mansions of Hamilton and Northfield, close by, were visited.

A PROSPEROUS HOUSE AND LAND COMPANY.

AT the annual meeting of the Imperial Property Investment Company, which was held last week, the Chairman stated that the Company had had no difficulty in selling or letting land during the year. He added that they had built 90 houses, sold 114, and had now on hand 145. A dividend at the rate of 10 per cent. per annum was declared, and a bonus of 15 per cent., and the Chairman stated that the directors had decided to issue 40,210 more shares, increasing the subscribed capital to 200,000*l*., which would be offered *pro rata* to the existing shareholders at 5s. per share premium. It seems a large increase all at once.

GERMAN CASTLES AND BOURGS.

THE MARIENBURG, NEAR HANOVER.

IN journeying south by rail from Hanover, the eye of the traveller, after passing Nordstemmen Junction, is attracted by a striking complex of buildings to the right, situated on high ground, and offering a commanding view of the surrounding country, the valley of the Leine. This extremely picturesque cluster of gables, towers, and turrets is the Marienburg, which bears the name of the Dowager ex-Queen of Hanover, and was erected for her by her husband, the late King George V. The building is of a light sandstone, and was begun soon after 1860, at first after plans by that eminent architect, Herr Hase, who intended it merely as a small château in a strictly Gothic style. The present aspect of the Schloss is the work of the late Baurath Oppler. The latter has displayed a great taste for artistic decoration, especially in the interior of the buildings, which, notwithstanding the simple style of the whole, is tastefully adorned. The rooms of the ex-Queen and the library, placed in one of the towers, are especially noticeable. The events of the year 1866 prevented the completion of the Rittersaal (Barons' Hall) and the decoration of the Morning Hall.

It would not have appeared strange if the artistic adornment, which had been entrusted to the painters, Knille and Gey, and had already been commenced by them, had been interrupted at that time. But the Queen was too high-minded to leave the work unfinished. At least, she insisted that the Morning Hall and the Dining Hall should be completed so far as the frescos were concerned. The painting of the Barons' Hall, which was to have received representations of Thuringian history, was abandoned; but the Morning Hall is adorned by frescos illustrating Thuringian folklore. The principal paintings are "Barbarossa in the Kyffhäuser," and "Venus and Tannhäuser," the latter similar in some respects to that placed by the master-hand of Knille in the Berlin National Gallery. Over the large paintings are smaller frescos in the frieze; for Barbarossa, "The Boy who found the Magic Flower"; for Venus, "The Faithful Eckhart, guarding the Entrance to the Hörselberg." There is also a large framing of pictures, likewise representative of Thuringian folklore. Gey has painted in the Dining Hall two large scenes from the life of Henry the Lion.

Decorated as the building is by subjects bearing upon popular tradition, from without it resembles an enchanted castle; for no one is allowed to enter it save the careful steward, who keeps everything in such perfect order that the owner may take possession at once, and miss nothing relating to comfort. As all along, the castle is still the private property of Queen Marie; but it is very questionable whether she will ever again step into the picturesque castle-yard, or rest her eye upon the Leinethal from the splendid terraces. This could only happen if she were to yield to the inevitable. Thus the castle stands, for some as a sad memory of former happy times, for others as a landmark of eventful days in German history.

ASHCROFT BUILDINGS LIVERPOOL.

THESE buildings are being erected for Mr. James Ashcroft, billiard-table manufacturer, of Victoria-street, Liverpool. Ten years ago Mr. Ashcroft built large show-rooms and workshops near the site of the present buildings, but the demand for billiard-tables has increased so much of late years as to necessitate his putting up still more spacious show-rooms and workshops in order to keep pace with the requirements of his business.

The new premises will not only include workshops for carrying on Mr. Ashcroft's own business, but also warehouses and offices, suitable for the various trades of which Liverpool is the centre. Victoria-street is the headquarters of the fruit and produce trades, and the above buildings form an important link in the chain of fine warehouses which, of late years, have sprung up in the neighbourhood.

The principal frontage of the building is in Victoria-street, and is carried out with Ruabon pressed bricks with Cefn stone dressings. The windows of the ground-floor are handsome bays, which will be used as shop-fronts. They are made of teak, and the upper lights are fitted with grisaille glass in lead quarries. The entrance-arch and the pilaster of the shop-windows (each of the latter being in one stone) are of Aberdeen red granite, and the plinths are of grey Dalbeattie granite, both from the celebrated quarries of Messrs. Newall, of Dalbeattie. There is an amount of carving on the stonework in the frontage, which presents a very handsome appearance.

The walls of the hall and staircase are lined with marble, door height, and the surface above with "Burmantofts faience" tiling and panels in relief. The screens and the doors to the shops, also the doors on the first-floor landing, are of American walnut, and, together with the hall ceiling, which is also in walnut and oak, will be of an elaborate character. The principal windows above the transoms and the windows to the area are fitted with grisaille glass, like the shop-windows and those on the light area.

From the centre entrance-hall access is had to the shops, and also by means of a broad stone staircase to the offices in the basement, and to those on the first, second, and third floors. The whole of the third and fourth floors will be occupied by Mr. Ashcroft as workshops in his extensive business as a manufacturer of billiard-tables, and every requisite for the complete fitting up of billiard-rooms, whether for hotels, clubs, and private houses. The roof over the workshop is flat, and will be used as a timber-yard for the storage of the different woods required in the manufacture of the above. The turret is fitted with apparatus to photograph all work of new and special designs. The roof and floor between the workshops and the warehouse are made of concrete, the former being covered with Claridge's asphalte. It will be readily understood that in large warehouses of this class, of large span, and where no intermediate columns are used, wrought-iron girders must enter largely into the construction. In this case no less than 100 tons of them have been used, for not only had provision to be made for the great weight of the machinery in the workshops, but the storage of something like 400 tons of timber, and a large quantity of slate beds for the billiard-tables on the roof, and the frequently heavy loads stored in the warehouses had to be provided for. Such considerations, together with the required obtention of large shop-windows, have made it necessary to carry up portions of the building in cement, and some parts in blue brick in cement.

The third-floor warehouse is fitted up with shafting and power, so that it is suitable either as a warehouse, by means of which loads up to one ton may be quickly lifted at each door at the same time. A large cage-hoist is provided for lifting timber, &c., from the ground to the roof, or for lowering the manufactured goods from the workshops to the showrooms, also a passenger lift. A strong main shaft is provided across the third and fourth floors. All the hoists and the machinery in the workshops are driven by two "Otto" gas-engines, each of eight nominal horse-power, one of which is fixed in an engine-house on the roof, and the other in the workshop on the fonrth floor. An engine-house is also provided on the third floor for another gas-engine, for the purpose of lighting the building by means of the electric light. The shafting is so arranged that either of the engines can be turned on to drive the machinery in either of both floors; or, in case of emergency, both engines could drive at the same time on to one main shaft. In the event of either engine requiring cleaning or repairing, the other one could be turned on immediately,—a very important consideration where a large manufacture is carried on. The walls of the private office on the ground-floor are continued the full height of the building, to form the above-mentioned engine-houses, and are made especially strong to carry the load. The corresponding rooms on the first and second floors are rendered fireproof, and are fitted with Milner's fire and thief proof doors, and form strong-rooms in connexion with the offices. A separate entrance and staircase are provided in Cumberland street for workmen, and for access to the warehouses. The warehouses are all fitted with iron doors and window-shutters in conformity with the requirements of the Fire Prevention Act, and every precaution has been taken to render them fireproof. The machinery is of the very best construction, great care and attention having been given to meet the special requirements of the building. The engines are too well known to need special description. The machinery in Mr. Ashcroft's old premises was driven by one 3½-h.p. by the same makers.

The general contractors are Messrs. Collin & Son; Messrs. Crossley Bros. supply the gas-engines; Messrs. Waygood the hoisting machinery; Messrs. Furness & Co. the shafting and wood-working machinery; Messrs. Stones & Co. the revolving shutters; Messrs. Yates, Haywood, & Co., and Messrs. Macfarlane & Co., the decorative ironwork; Messrs. Norbury, Ryston, & Patterson, the stone carving; the whole being carried out under the direction of Messrs. Hoult & Wise, architects, 4, Water-street, Liverpool.

We may add that the various contracts for the building, &c., come to little over 13,000*l*., exclusive of the land, which has been purchased on lease from the Earl of Derby.

LONDON STREET ARCHITECTURE, No. 350, OXFORD-STREET.

A NEW lease for sixty years was granted by the Duke of Portland upon surrender of the then existing lease, which had about six years to run. The business was established about thirty-five years back by the late Mr. John Bumpus, and is now carried on by his son John. The building which occupies part of the site of Old Tyburn Church has a frontage of about 32 ft. in Oxford-street, and a return frontage of about 37 ft. in Marylebone-lane. Both fronts are executed in Portland stone ashlar, and on the ground-floor have Corinthian pilasters with carved capitals standing on polished granite plinths.

The shop-front is of American walnut, glazed with plate glass. The building, including basement, is six stories in height, and is entirely used for business purposes. The shop and floor above are fitted up with book-shelves and cases of American walnut; the latter are glazed with plate glass, and are devoted to bound books, of which Mr. Bumpus has an extensive assortment of considerable value. The upper floors contain a counting-house and private room, and are fitted with shelves for the general stock, which is very large. The basement is devoted to second-hand books, conveniences for packing, &c., and has a lift taking goods direct from the street, and a smaller lift communicating with each story. There are likewise speaking-pipes and other conveniences.

The cost of the building was about 5,000*l*., and it was erected by Messrs. G. H. & A. Bywaters, of King-street, Regent-street, from the designs and under the superintendence of Mr. E. Marks, architect, 1, Duke-street, Grosvenor-square. Messrs. Daymond & Son executed the stone and wood carving from the architect's designs.

REREDOS, ST. MARY'S, NEWINGTON.

THE new reredos in St. Mary's, Newington, of which we give an illustration, is now nearly completed. It would have been completed before now if funds for it had been forthcoming. Mr. James Fowler, of Louth, is the architect.

MATLOCK BATH WATER SUPPLY.

CAPTAIN ROBERT C. T. HILDYARD, an inspector of the Local Government Board, held an inquiry at Matlock Bath, on the 4th inst., with respect to an application from the Local Board of Matlock Bath and Scarthin Nick, for sanction to borrow the sum of 6,014*l*. for the purchase of the undertaking of the Matlock Bath Waterworks Company, and for the execution of works of water supply.

In the year 1881 Messrs. G. B. Nichols & Sons, engineers, of Handsworth and London, were called in by the Local Board to report upon a scheme for water supply, and to value the company's works. Their valuation amounted to 1,763*l*. The company's engineer, Mr. C. H. Roper, of Dudley, valued the works at 2,759*l*. 7s. 6d.; and in March, 1882, an arbitration was held, Mr. Wm. Batten, C.E., as umpire, whose award was 1,907*l*. 10s.

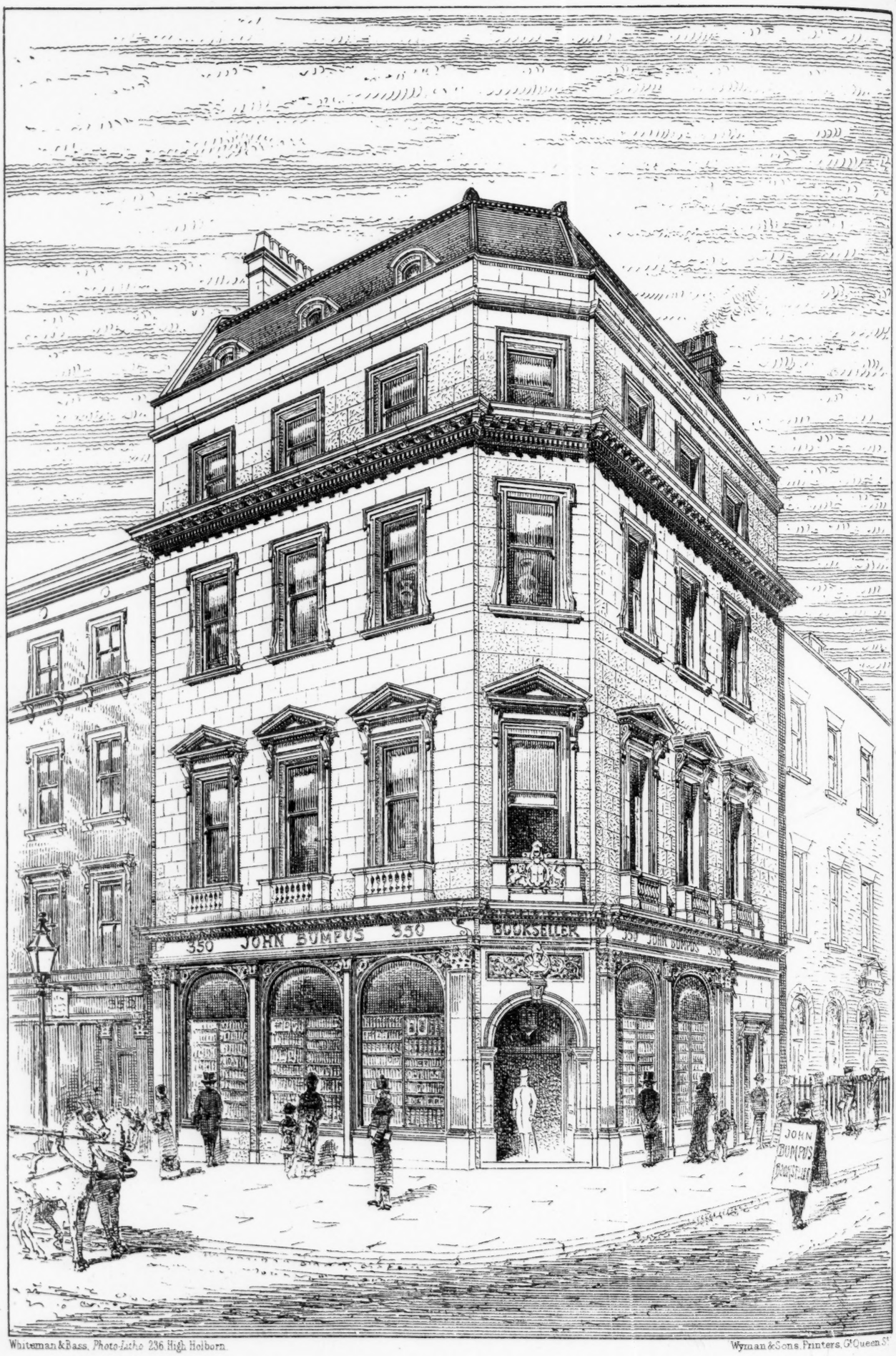
Messrs. Nichols & Sons estimate the cost of constructing new works, and extending the present sources of supply, at 4,077*l*. 3s.

There was no opposition to the application.

Competition.—The design of Messrs. Borer & Dobb, architects, of London-wall, has been selected in a limited competition by the Committee for the erection of the new Congregational Church, Lower Edmonton, N. (Rev. G. S. Curryer, minister).

GERMAN CASTLES AND BOURGS: THE MARIENBURG, NEAR

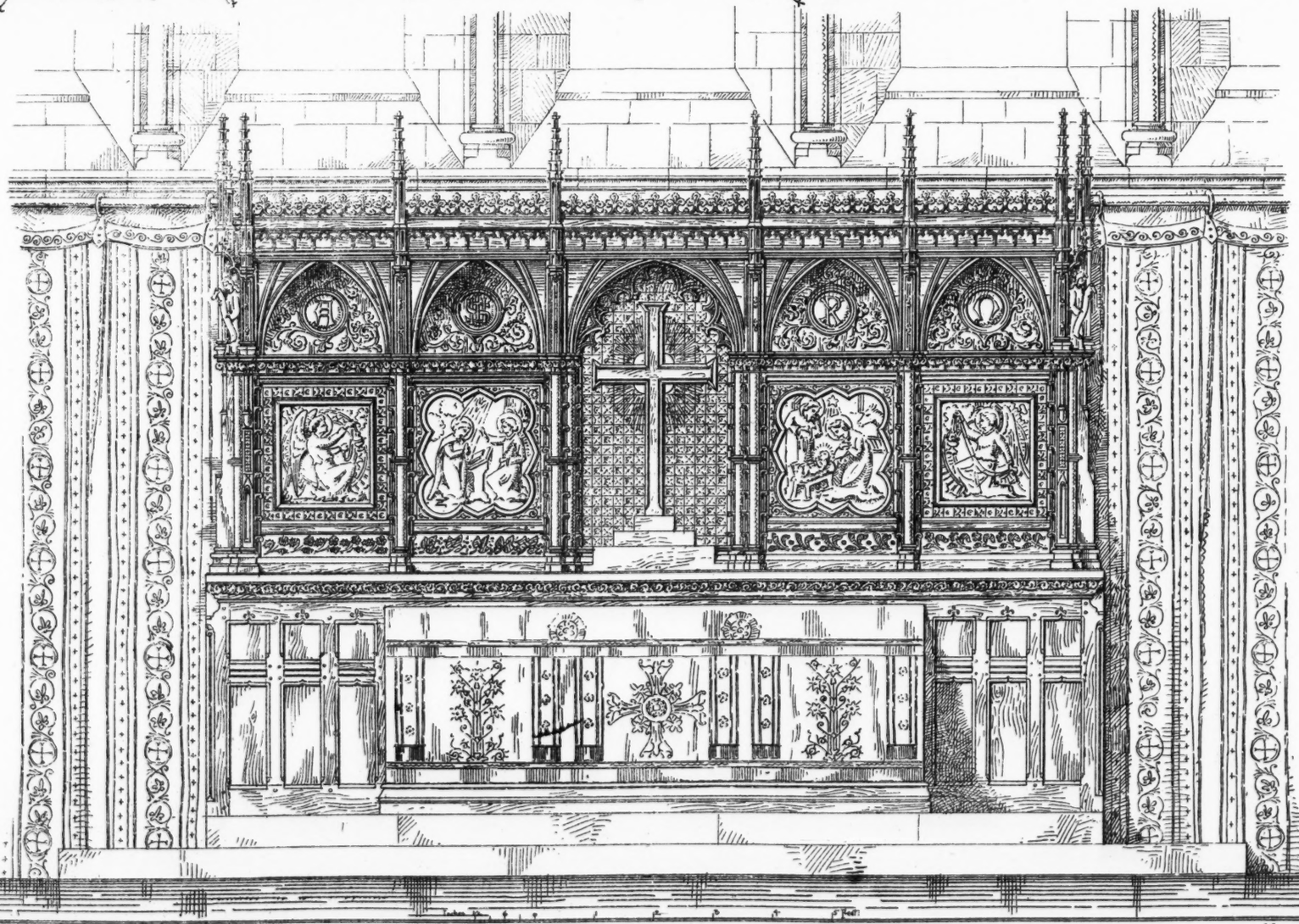
RG, NEAR HANOVER.—HERREN HASE AND OPPLER, ARCHITECTS.



Whiteman & Bass, *Photo-Litho* 236 High Holborn. Wyman & Sons, Printers, Gt Queen St.

LONDON STREET ARCHITECTURE: A HOUSE IN OXFORD STREET.—Mr. E. Marks, Architect.

S: MARY: NEWINGTON: DESIGN FOR REREDOS:



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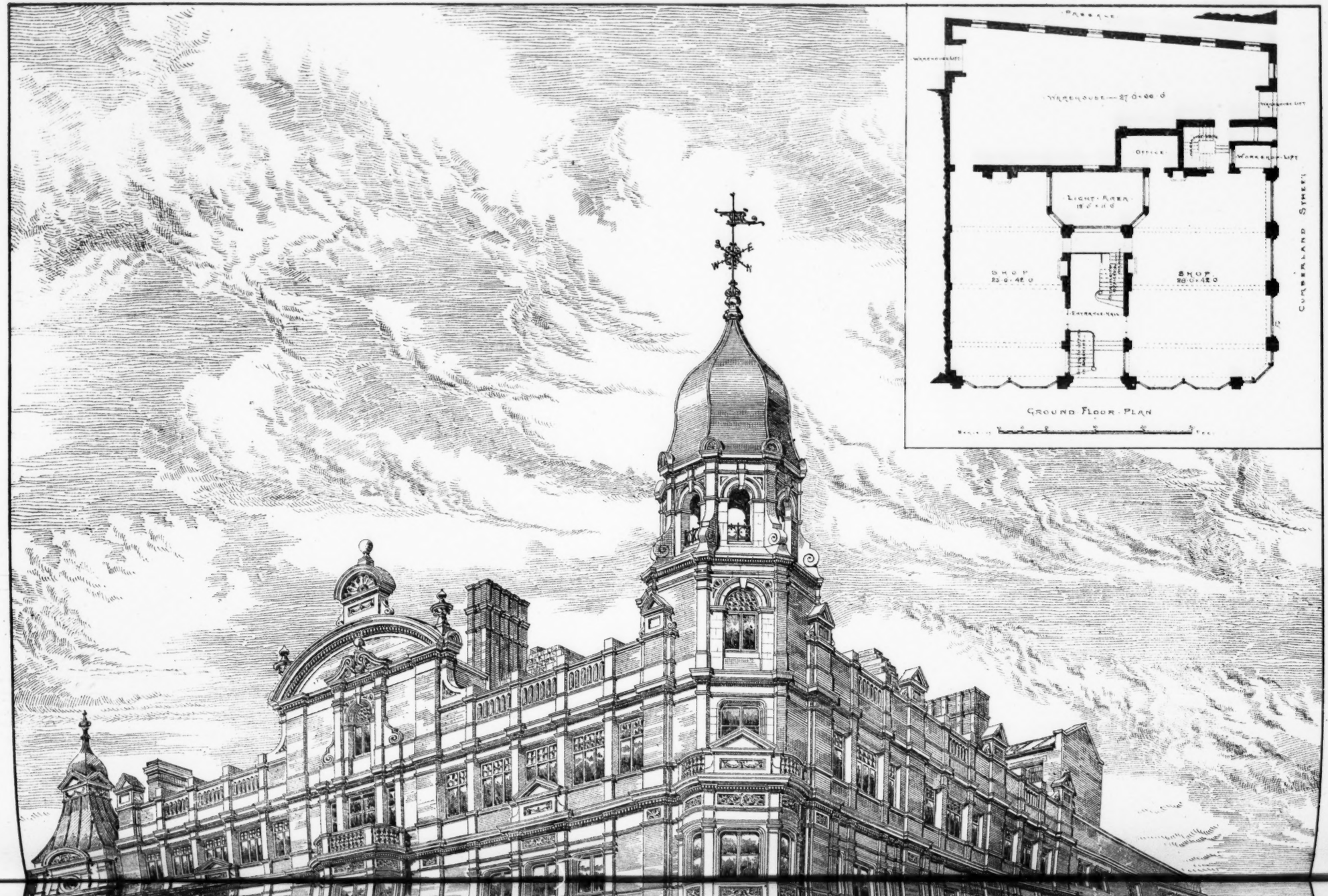
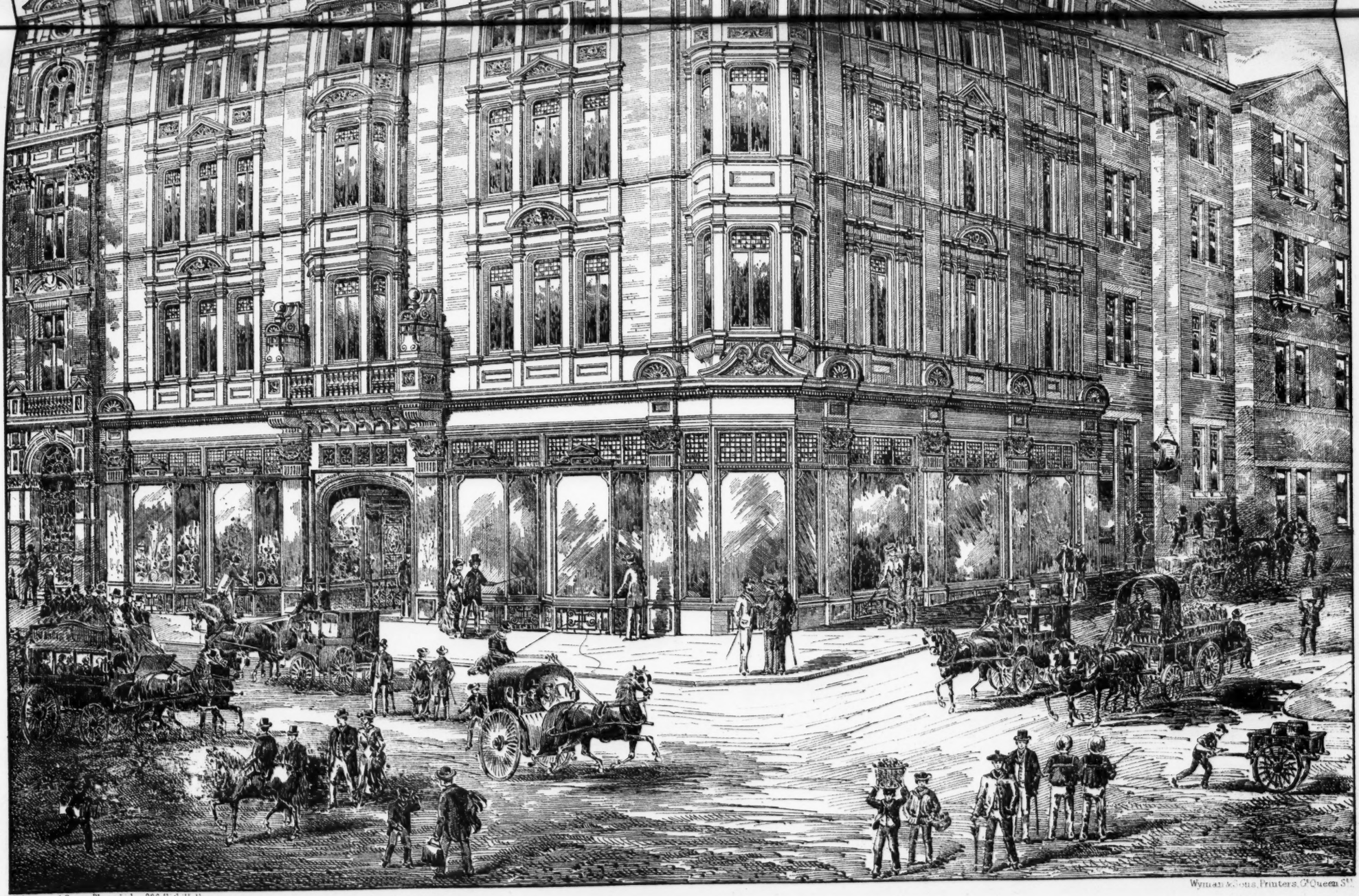

PASSAGE
WAREHOUSE
OFFICE
WORKMEN'S LIFT
LIGHT AREA
SHOP
SHOP
CUMBERLAND STREET
GROUND FLOOR PLAN



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ASHCROFT BUILDINGS, LIVERPOOL.—Messrs. Hoult & Wise, Architects.

ITALY.*

I FEEL that I have been more than a little rash in choosing for my subject this evening one so comprehensive and so much better understood by some of you than by me. My apology must be that I feel more or less enthusiastic in the matter, and that, even if I fail to say anything which will be new to the old travellers, I may at least hope to interest some of my fellow students, who have not yet had the good fortune to visit Italy, in the architecture of that country which held the foremost place in art and literature for several centuries of the world's history.

In the spring of 1880 I had an opportunity of travelling abroad for a short time for the sake of study, and of course I was recommended to go to Italy. It was the right thing for a young architect to do,—every one did go there, and I was certain to enjoy it. But for a long time, in my usual pig-headed way, I declined to entertain the idea: I was a narrow-minded Goth, and would not look at any thing without pinnacles and pointed arches; as to a flying-buttress, I loved it as my friend and brother. My views of Italian architecture were not very broad, and by no means flattering; they were gathered principally from such books as Letarouilly and Cicognara, and I think concentrated themselves in a vision of Corinthian columns, as numerous and infinitely more monotonous than the trunks in a pine forest sprouting at the top into marble acanthus-leaves of the most irritating sameness. However, knowing very well that I knew nothing really about the matter, I at last allowed myself to be persuaded into going, and one wet and dreary evening in April I found myself, after a long and tiring journey, in the train running down the wild valley of the Dora from the Mont Cenis Tunnel towards Turin. This valley is described in the guide-books as picturesque and lovely; but that evening, in the wind and rain, and tired as I was, it appeared to me the very impersonation of weird and fantastic desolation,—the sort of place, as some one said, for which Gustave Doré must have got out the working drawings; he might have added that Danté should have been employed to write the specification. The few drenched passengers at the stations, with their slouched hats and cloaks thrown over the shoulder appeared like so many Guy Fawkeses or stage villains dissembling; the fact is, I had made up my mind to make the worst of everything. It rained incessantly for the first three days I was in the country, and I talked sarcastically about blue Italian skies; it was bitterly cold, and I wrote home ironically about "the sunny south." The paper money, the noisy streets, the importunate beggars, and the pestilential guides were excellent food for my ill-temper; while the buildings of Turin, where I was staying, were not calculated to dispel my illusions with regard to Italian architecture. Altogether I was decidedly *not* happy. However, after these first three days matters began to mend,—the rain ceased, and we had a cloudless sky all the summer through, the temperature became warm, and sometimes something more, and from the time I went to Pompeii,—which I did at once, while it was still spring and reasonably cool,—I began to get enthusiastic in my studies.

I do not propose to weary you by acting the showman, and telling you, in guide-book fashion that in such-and-such a town this and that building have certain features of interest, and that they were built by So-and-so, and restored by somebody else, neither of whom you may ever have heard of, but rather to attempt some short description of those features which made most impression upon me as being peculiar or peculiarly treated, and you will, I hope, not think me presumptuous if I add a few opinions and criticisms upon what I describe. In the fear of failing to interest you by what I have to say, I have borrowed from my friends a number of sketches and drawings of Italian architecture, which are hung upon the walls, and for the loan of which I desire to convey my best thanks to Mr. Millard, Mr. Vacher, Mr. Stokes, Mr. Hooper, Mr. Conder, and Mr. Leach.

I may say at once that my vision of Corinthian columns quickly faded. There is in Italy a mass of Mediæval work which, whatever its faults,—and they are many, at least, from our standpoint of constructional truth,—must excite the deepest admiration.

* A paper by Mr. F. T. Baggallay, read before the Architectural Association on the 6th inst.

Shams: Want of Thought in Design.—There is much of what we should call shams and constructive absurdities, and there is an evident lack of thought and ingenuity in much of the designing (I speak of the Mediæval work only); but these things were apparently not held to be faults, or more probably were altogether unnoticed at the time; and there is so much native grace and dignity of outline, and such beauty of colour, and, above all, such variety and suggestiveness, that one feels bound to forgive even such grave and fundamental errors.

Want of Continuity in Style.—One of the first things with regard to Italian architecture that I observed in going from place to place was its independence. There seems only a very slight connexion, except in a few matters and in exceptional cases, between the style in vogue in one town or group of towns and that of another; even the continuity of its history in one place is often most difficult to understand, designs springing up constantly, founded to all appearance upon nothing that has gone before and contemptuously indifferent to precedent, that tyrannical pedagogue before whom *we* all bow and tremble.

What apparent similarity is there, for instance, at first sight, between S. Ambrogio at Milan and S. Zeno at Verona, both buildings of the 12th century; or between S. Miniato at Florence and Lucca Cathedral, separated only by 50 years in time and by less than 40 miles in distance? Or where is the evident connexion between the gorgeous façades of Orvieto and Siena cathedrals and any previous or contemporary buildings. Of course, I do not mean that no connexion exists, but only that the course followed by the designers was so independent that some research is required to find it, and great difficulty would be experienced by any one who attempted to classify the architecture of Italy by dividing it into periods, as we have done with our own and with that of France; indeed, to do so would, I believe, be found impossible.

Low Roofs.—The thing of all others which, on entering Italy, is most certain to arrest the attention of every architect from this side of the Alps is the low pitch of the roofs. The reasons for this have been so often detailed that it is not necessary to repeat them again; but it has such an important influence on much of the designing that I cannot help referring to it. The first and most important consequence is that the roof becomes an entirely unimportant feature externally, even if it is seen at all; for a very flat pitched roof does not, of course, appear in perspective. When you think of the sky lines and other picturesque effects of the high roofs and gables of France and Germany, and what an important service the long level ridges and flat surfaces of the roofs of our English cathedrals perform in giving repose and finish to the designs, you will perceive at once what a difference this alone must introduce. Then, again, low roofs mean low-pitched gables, and these, almost as a natural consequence, necessitate the horizontal treatment, which is everywhere noticeable, rather than a vertical one, and so assist in maintaining the classical traditions of the country.

Lack of Vertical Connexion.—To this dominant horizontality (if I may call it so) is due, I think, the fact that Italian architects, while evidently very particular about the *lateral* continuity of their designs, seldom seem to have thought it necessary to provide any *vertical* connexion between the parts, so that buildings frequently give one the impression that they have been erected in separate stories or features, which were afterwards piled upon one another.

Absence of Buttresses.—Another thing that strikes the English architect most forcibly in Italy, notwithstanding all he may have heard about it beforehand, is the absence of buttresses. An Italian never used a buttress if by any possibility he could avoid it. If it was necessary to resist the thrust of an arch, he considered that the natural and legitimate thing to do was to put in an iron tie-rod, and he did so with the greatest frankness, and without the least sense of shame or of its being in any way reprehensible. So much has been said upon the merits and demerits of the two systems, that I will only remark, that while one leads to picturesqueness and piquancy the other lends itself to refinement and repose. It is certain that buttresses would so alter many of the most beautiful features of Italian architecture that they would no longer be themselves in any sense whatever. How would it be possible, for instance, to construct with buttresses anything at all resembling the beautiful porches attached to almost every cathedral and important church of the Romanesque period in Lombardy, which I shall presently describe?—or the tomb canopies of Verona and Bologna, one of the principal charms of which is their simple outline? Or how would Italian campanili look with buttresses? Perhaps they might still be beautiful in another way, but they would no longer be Italian campanili.

Arches.—A noticeable point in all the more nearly Gothic of Italian Gothic work,—that which is evidently founded to some extent on Northern buildings,—for instance, to give the best-known examples, Florence, Orvieto, and Siena cathedrals,—is that the arch mouldings are invariably, I believe, a repetition of those on the jambs, the caps being treated simply as an impost. I must say that I do not see the horrible wickedness of this arrangement, so often held up to reprobation by the virtuous apostles of architectural propriety. The caps have only a slight projection, and are so much run together that they may well be regarded as simply a band of carving marking the change from a straight line to a curve in the lines of the jamb; and as to the mouldings being the same, why, we do it ourselves every day. Where the arches are stilted, as they often are, the real springing is marked, with much true artistic feeling, by a small subordinate moulding, which often, too, forms a kind of base or plinth to the mouldings of the arch. I must not omit to mention the form of pointed arch, peculiar to the civil buildings of Florence and Siena, and a few other places to which the style extended,—which grows thicker towards the apex; that is, has the back of the arch more pointed than the soffit. This form strikes me as having an exceedingly pleasing effect; how much of the pleasure is due to the novelty I am not quite sure, but I do not think much. It has been condemned as unscientific, but of that I am not convinced, for I think it must bring the thrust more perpendicularly upon the abutments. Even if it is unscientific, must we always sacrifice beauty to constructive truth? And had we not better, in that case, become civil engineers at once?

Colour.—One prominent characteristic of Italian architecture,—perhaps the most prominent; one certainly which strikes any traveller from this drab and dingy city as much as any,—is the prevalence of beautiful and brilliant colour, both outside and inside the buildings. The climate is, no doubt, mostly responsible for this; the strong lights and deep shadows make brilliant colours, which here look glaring and vulgar, both bearable and pleasant. Perhaps, also, the artistic instincts of the population have something to do with it; and the purity of the atmosphere makes it possible to expose even fresco paintings in the open air. Coloured marble, too, is comparatively easily obtained and cheap, and is largely used in important works, both in large pieces and in mosaics. But the Italians use also materials for external colouring which are equally accessible to us, and which are, indeed, being gradually introduced; though not to such an extent as they might be, did some of us exhibit but a little more energy and enterprise, and perhaps a little less wilful prejudice. I speak of terra-cotta, ceramic ware, and glass mosaics. Before I went to Italy I was strongly prejudiced against the two first of these, but I feel sure that no one could retain any such prejudice after seeing the terra-cotta work at Ferrara, Bologna, Pavia, and other towns in the North of Italy, and the glorious panels and friezes of Della Robbia ware at Florence and elsewhere.

Terra Cotta.—The most refined work in terra cotta is, I think, to be found at Ferrara, with cinque-cento details, but there are also a mass of very beautiful things at Bologna, and the cloisters of the Certosa of Pavia seem hard to beat when one is looking at them. I have sometimes heard it urged that terra cotta being a cast material leads to flatness by the avoidance of undercutting, and to lack of interest by the repetition of features. Of course, it may be so, but the Italians do not seem to have fallen into either trap; their terra-cotta work is full of vigour, sometimes, as in the Ospedale Maggiore, at Milan, too much so, I think; and the more important features are seldom or never repeated, but are undercut and modelled like features in stone or marble, the mould being then necessarily broken in the production of the first cast. Among all the beautiful busts and

heads in the cloisters of the Certosa, I believe I am right in saying that no two are alike. The features required to be repeated cannot, of course, be undercut, but they are usually elaborately carved with running ornaments, only a few fillets being left plain. This has two advantages; it prevents the unavoidable flatness of the mouldings being noticed, and it hides, to a great extent, the imperfection of the joints caused by the unequal shrinkage of the material.

Ceramics.—The ceramic or majolica ware, to which I have referred, is glazed and coloured, and belongs to the latter half of the fifteenth century. The colours are mostly blue, green, purple, and yellow. Wherever it appears it is always attributed to Lucca della Robbia, or some member of his family, and I have never heard any doubt cast upon its origin; but, if the family had a monopoly of the manufacture, I think it must have been a valuable one, for there are now specimens of it all over the world, there are several at South Kensington. It is often used internally, as well as on the outside of buildings; but is, I think properly, confined, with few exceptions, to decorative friezes and panels. (The most noticeable exception is the front of the Oratorio of S. Bernadino at Perugia.) It always has a good effect, especially when the colouring is confined to a flat ground from which the white figures stand out in relief, the simplicity being eminently decorative. It is used with particularly beautiful effect in the coffers of the central arch of the porch of the cathedral at Pistoja and in the circular coffers,—I do not know whether that term is correct, but I think it will explain what I mean,—of the beautiful little dome over the porch of the Capella Pazzi at Sta. Croci at Florence.

Banded Striped Work.—It would not do to leave the subject of external colouring without mentioning the striped work both in white and dark green (practically black) marble, and in white marble or stone and red brick. It has occasionally an irritatingly unquiet effect, and I am sometimes a little inclined to think of zebras in connexion with it; but, on the whole, I think most people are pleased with it, and it certainly gives interest to many an otherwise flat wall surface. The bands are, of course, always horizontal, but there seems no rule to regulate their depth. Sometimes the black and white are about equal, as at S. Lorenzo at Genoa and the cathedral at Orvieto. The interior of Siena Cathedral, one of the most impressive interiors I know, is exactly similar. Sometimes, as in the exterior of Siena Cathedral, they are so unequal that one might call it a white wall with black strings; but usually the proportion is between the two extremes, the white being always in excess. The best example that I remember of the many buildings with red brick and white marble bands is the cathedral at Verona. The bands are about equal in breadth, and have a very fine effect; much better, I think, because a little less contrasted than the black and white.

Mosaics.—Glass mosaic was employed everywhere, almost to the exclusion,—sometimes altogether to the exclusion,—of other forms of decoration in the interiors of all the important early Christian churches in Italy. Those of Ravenna and Rome are covered with it, and in the tenth century even the whole of the interior of St. Mark's at Venice, from about 15 ft. or 20 ft. above the floor, is literally sheathed with it as if with a tight skin.

The ground colour of these mosaics is sometimes a dark rich blue, as in the interesting little building called the Mausoleum of Galla Placidia at Ravenna, but more usually it is golden. The tesseræ vary in size from that of a finger-nail, or larger, to almost microscopic minuteness, and no particular care is taken about their exact form. They are always arranged in rows or lines following the contours of the objects represented, and the features, hands, and other important parts are drawn with the smaller pieces, and the groundwork and flat surfaces with the larger ones. The drawing is stiff and conventional,—to put it in polite language,—but, on the whole, pleasing, and perhaps more decorative in character than the highly-finished productions of a later age. The colour is magnificent in the extreme.

I could never like the system adopted of running the mosaics round the arrises of arches and piers, it altogether confuses the lines of the architecture, and, though some say there is much poetry in the mystery that results, it, nevertheless, seems to me to offend against true decorative principles. Besides, I do not see that mystery *does* necessarily mean poetry; there is plenty of the former, but very little of the latter, in a London fog. I should much like to try the effect of a marble moulding on the arrises the first time a client gives me an order for a mosaic-covered interior. The mosaics with which the west fronts of Siena and Orvieto cathedrals are covered, and most of those in the west front of St. Mark's are of late date, gorgeous in colour, unconventional in treatment, and scarcely, I think, worthy of the admiration often expressed for them.

I might say much about the painted and fresco decorations both of early date at Pompeii and Rome, and the later ones at Perugia, Pisa, Florence, Assisi, Padua, and elsewhere; but they afford more than sufficient matter for a paper by themselves, and I leave them with the hope that some one will before long come forward with an essay on the subject.

Marble.—The use of marble is so important a feature in a large majority of the principal buildings of Italy that it deserves to be described at some length. Much has been said and written respecting the sham involved in casing walls, as is there almost invariably done, with marble slabs. It is done in the churches and palaces of Venice, notably at St. Mark's and the upper part of the Ducal palace. All the principal ecclesiastical buildings at Florence, the cathedral, the baptistery, the campanile, St. Miniato, Sta. Maria Novella, and Sta. Croce are incrusted with white, black, and coloured marble in thin slabs, and the same is true of many churches at Pisa, Lucca, Pistoja, and, indeed, throughout the country. Milan Cathedral is an exception, it is true, in this as in other ways, and I think St. Lorenzo at Genoa, Siena, and Orvieto cathedrals (all except the west fronts), and a few other buildings have really marble ashlar; but it is impossible to tell. I have rather lost faith in ashlar work, since I have seen the destruction of the old law courts at Westminster, and how the solid-looking blocks there turned out to be little better than paving stones on edge. Even if those buildings are of solid blocks, they are only of the white and dark green marbles, so easily obtained from the neighbouring quarries in the Apennines that they may be considered as the local materials. It seems to me that it would have been absurd to use rare coloured marbles in the same way as common building stone; they are practically quite a different material, and should be treated in quite a different way; they are too valuable to be used for building solid walls with, and too beautiful to be laid so that only one small end or side of each block can be seen. As much surface, surely, should be exposed as possible, and the only way to do that is to use them in columns or in thin slabs. Some, perhaps, will say that, if marble could not be used in solid blocks, then it should not have been used at all for walling. But it would have been very hard to discard altogether the most beautiful of natural materials which are sufficiently durable for external use. I must say I think the Italians were perfectly right in resorting to the *slab* system; but I do not know that they often applied it in the right way. At St. Mark's, and most of the older buildings in Venice, oblong strips were laid over the whole surface, and fastened with cramps, so as to form a regular veneer, arranged like the veneering on our grand pianos and other furniture of a few years ago, with the veining reversed to form pretty patterns. This treatment is at least honest, and has no appearance of insecurity, because the cramps are perfectly visible; but it is surely too crude and wanting in ingenuity to be a worthy solution of the problem. In most of the Florentine buildings, notably the cathedral, and in many buildings at Lucca and other Tuscan towns, the marble incrustation takes the forms of joiners' work, with styles, and rails, and panels just like a wooden door or partition. This is, of course, to be condemned; every means must be taken to avoid using the forms proper to one material when working in another. The styles and rails at once give the impression of being framed together to carry the panels; and, if you were unaware of the nature of the material, you would be quite surprised to learn that the framing was not itself the wall, but was carried by something much more solid behind it. In many buildings, in parts, for instance, of the cathedrals at Pisa and Lucca, the slabs are ranged in courses and pretend to be solid blocks. I do not think any one will defend such a conscious untruth as that. In others, the best-known instance is that of the Doge's Palace at Venice; the pieces are cut small and arranged in a pattern or diaper: this is a less objectionable system, but is, nevertheless, a treatment more suited to bricks or tiles or some manufactured material which is always obtained of a particular form and size. The real solution seems to me to be found in those Venetian palaces,—the Ca d'Oro, for instance, in which the slabs are arranged in panels outlined by a moulding or ornament, such as a cord or what Mr. Ruskin calls the Venetian dentil. These mouldings are cut on the edges of slabs, which are built into the wall and form a perfectly constructional and legitimate tie for the facing, which no one could take for any thing but what it is. The treatment does not imitate that of wood or stone, and indeed would not be suitable to either. It appears, and is, perfectly secure, and gives, as you know, very beautiful results. The Venetians of the fifteenth century seem to me to have been very happy also in their use of porphyry, verde antique, and other very valuable and rare marbles, which they set in frames like jewels in the fronts of their houses, sometimes in squares or diamonds, but more frequently in circles. I do not know whether the idea has ever been suggested by any one else, but it occurred to me that possibly these circles may be the slices cut off the ends of the antique columns, stolen from Constantinople and the East to make them fit their new positions. The notion seems at first, perhaps, a little wild, but I do not know that there is really any great improbability in it. Of coloured marbles in columns there is little to be said, except that they seem most appropriate when of small scantling, and most beautiful when quite plain; fluting, twisting, or carving on veined or even coloured marble, whether in columns or otherwise, seems almost an insult to the material, and certainly spoils in the one case the beautiful lines of the natural veining, and in the other the breadth of the colour.

Pavements.—I must not leave the subject of marble without mentioning its use in pavements. The early marble mosaic, the *opus Alexandrinum*, as it was called, to be found at Rome especially, in most of the ancient churches, is, to my mind, the most appropriate material for a decorative pavement ever invented. The marble is rich and beautiful in itself, and able to bear a considerable amount of wear and tear without material deterioration, and the patterns, being geometrical, never suggest the reluctance to walk upon them which one feels if natural objects are represented. The pattern is almost always founded upon the circle, one large one forming a nucleus round which others are arranged on the hen-and-chickens or planet-and-satellites system. The eye of each circle is usually a large piece of porphyry or other rare and valuable marble, and this is surrounded by a single, triple, or quintuple band of smaller pieces, which goes winding about and connecting the whole together. Then there are the marble pavements of St. Miniato at Florence and the cathedral at Siena, each unique in its way. That of St. Miniato, laid down in 1207 (I like to make the most of a date when I have one), is in black and white marble, the black forming the ground, with circles containing conventional animals in white upon it. The pavement of Siena Cathedral is a magnificent work in white marble, with Biblical scenes and architecture drawn upon it in incised lines, which are filled up with black mastic. The whole thing is magnificent as a piece of line drawing on a gigantic scale, but simply abominable as a pavement. There is a rubbing of a part of it in the Architectural Court at South Kensington. While on the subject of pavements I should like to mention some which remain at Pompeii, and which are very suggestive for cheap floors. They consist of a concrete of broken brick or lava, making a red or black ground respectively, into which have been pressed, while it was wet, small tesseræ of white and black marble, in various geometrical patterns, squares, diamonds, frets, or others. They are very effective, and I do not see that any difficulty could arise in reproducing them.

Furniture.—A vast quantity of marble, both white and coloured, is used in the furniture of the churches, in pulpits and fonts, stoups, screens, altars and tombs. The early pulpits, or ambones, and the screens, decorated with opus Alexandrinum, and often also with glass mosaics in geometrical patterns (the principal colours used in such mosaics are red, yellow, white, and dark blue or green), give one an idea of colour

not to be acquired by the wildest dreamer in this country. Some of the more southern towns, such as Salerno, Amalfi, and Ravello, possess the best specimens of this kind of work, but there is a great deal also at Rome and a little at Ravenna. The beautiful white marble pulpits at Pisa and Siena, the work of Niccolo and Giovanni Pisano, are, I suppose, the finest specimens of Gothic furniture in Italy, but they are more works of sculpture than of architecture. (At South Kensington there are casts of the one still existing in the baptistery at Pisa and the one which was once in the cathedral). The pulpits and other furniture in white and coloured marbles of the cinque-cento period, which are to be found all over the country, are most exquisite and refined both in design and execution, but would alone take a long paper to describe.

Carving.—In Italian architectural carving, though the figure sculpture is always most beautiful and interesting, and though almost all the foliage of the Roman and renaissance periods in Italy is an acknowledged example to all ages and countries, it seems to me that much of that on the buildings of the Gothic period, while it has thrown aside the conventionality and refinement which make the beauty of the former, has none of that vigour and crispness which make up for the loss in the carving of our own and the French Gothic period, and upon which we set such a high value; in fact, many of the crockets, which are generally very large and set very close, look like very naturalistic cabbage leaves, while the undulating contortions of others strongly suggest flames; and when, as was often the case, I saw a gigantic finial with an ugly little half-length figure of some saint popping out of it like a jack-in-the-box, I was irresistibly reminded of a fairy tale that was once a favourite, in which an ogre appears to a child out of an actual cabbage. I do not care either for the foliage on the caps of the same period, which is naturally of much the same character. Some of you will at once think, I suppose, of Mr. Ruskin's eulogy of the caps of the arcades of the Ducal Palace at Venice; but even their beauty does not lie, I imagine, to any great extent in the foliage, but is due to the figure sculpture and the thought displayed in its design. I came across, however, one little piece of foliage of singular interest, it was the knob of a cap on an ambone in the cathedral at Ravello, near Amalfi, right in the south. It is work of the thirteenth century, certainly, but all the rest of the carving is purely Romanesque, while this piece bears something more than a strong resemblance to our Early English work,—it is, in fact, the very thing itself. While on the subject of carving, I must not forget the name of Mino da Fiesole, a Florentine sculptor, who lived in the second half of the fifteenth century, and who did a large quantity of decorative work in the neighbourhood,—there are several specimens of it at South Kensington. His sculpture in low relief, with its simple, sharp lines, is wonderfully well adapted to architectural decoration. There is one very charming specimen of carved work in the external pulpit on the south-west angle of the cathedral at Prato. It is a circular structure in white and coloured marbles, with sculptured panels surmounted by a moulded rail, corbelled out from the wall and surmounted by a conical canopy, a little like an umbrella; the effect is novel and pleasing in the extreme.

Symbolism.—The Mediæval Italians thoroughly understood, and were very fond of, symbolism; and the traveller who has studied Mrs. Jamieson's interesting books will find that his pleasure is vastly enhanced by his power of deciphering the legends told by that means in the sculptures and decorations of all the more important Italian buildings. Not only were religious emblems used, but cities and historical events were represented by symbolical animals on the angles or over the doorways of their public buildings, giving something of the piquancy and interest which is to be found in our more useful and more grotesque gargoyles.

I find that I have wandered to some extent away from purely architectural subjects, but by way of returning to them I will say a few words about corbels.

Corbelling.—The Italians are exceedingly fond of corbelling, and use corbels and consoles of enormous size and projection. I remember some at Bologna, in the courtyard of the Palazzo Fava, 9 ft. high and 5 ft. 6 in. in projection. In the same town the whole side of a celebrated brick and terra-cotta house, in which the Caracci are said to have lived, situated near the Piazza St. Domenico, is corbelled out some 3 ft. at the level of the first floor. The eaves of the roofs, which are frequently made of enormous projection for the sake of the shade in the streets, are in that case often supported on long carved wooden brackets, as, for instance, at the Bigallo at Florence. The corbels and consoles supporting the numerous window balconies in Italy, and the singing galleries, which are such a frequent and fine feature in the churches, are often of elaborate and beautiful design, especially those of the cinque-cento period. Corbel tables under cornices and strings were used in Italy up to the latest period, and many are very elaborate and beautiful.

Balustrades.—A very common feature in the north-east, in Venice, Verona, Padua, &c., is a peculiar balustrade, formed of a number of little colonnettes generally supporting a solid-looking trefoiled head, and surmounted by a moulded rail. The caps, and sometimes the spandrels between the trefoils and hollow in the rail, are carved with foliage; there are often no bases, and occasionally no caps either to the shafts, and very frequently the head is omitted, and the shafts directly support the rail. There is a very beautiful specimen in the red marble balustrade of the staircase at the Casa Priuli at Venice (the same house which has the corner window illustrated in Mr. Street's "Brick and Marble Architecture").

Balconies.—But I think these balustrades are most charming when surrounding one of the little balconies corbelled out from the house-fronts, as I have mentioned above. In Padua and Venice I remember them especially, and the extra charm often given to them by the little conventional lions or other figures perched upon the corners and peeping at the passers-by.

Twisted Shafts.—Another feature which I remarked in Italy as being peculiar to the country is the twisted shaft, which seems to be used everywhere, from the building of the beautiful cloisters of St. John Lateran and St. Paul, without the walls, at Rome, in the commencement of the thirteenth century, to the erection of the front of the baptistery of St. John at Siena at the end of the fourteenth. These shafts are generally exceedingly beautiful in themselves, and as they are most frequently used, that is, simply for decorative purposes, very seldom where a great weight has to be sustained, do not strike me as so awfully unconstructional. The variety of design is practically unlimited; a plain shaft twisted on itself is the simplest, and between this and the shaft, which is not only twisted, but has as well three or four elaborately-moulded carved and inlaid threads running round it like the threads of a screw, there must be an almost endless number of varieties, each of which may be again infinitely varied by altering the mouldings, or making the turn quicker or increasing the number of threads. A further complication is sometimes introduced by twisting two shafts together, but that has, I think, always an unpleasing effect. Where these twisted shafts are used in door or window jambs they follow the example of the other mouldings, and run round the arch as twisted rolls.

Doors.—Coming to doors and windows, I cannot, of course, notice all the varieties, but must choose those which seem most beautiful or characteristic. There is one class of very elaborate doors which greatly excited my admiration. The most beautiful example I know is the south door of Orvieto Cathedral. The jamb and arch-mould consists of alternate chevroned rolls or shafts, and bands of conventional, very refined, and deeply undercut foliage, of an altogether exceptional type at the period, but strongly resembling the classic acanthus; these are divided by rows of small dog-tooth ornament. The door is, as usual, square-headed, with a deep, rich green, bronze lintel, carved with little figures of our Lord and his Apostles. The arch is pointed, and the springing is marked by a band of carving, running into caps over the shafts, with a moulded architrave, which is carried across the lintel on consoles. In the tympanum are two little twisted shafts, which evidently once carried a canopy under which was probably a figure of a saint; and there are also some remains of colour decoration. The whole (except the lintel) is in white marble, and the richness of the effect is perfectly enchanting. Many similar and not much less beautiful doors exist in the country; there is one on the south side of the Palazzo Communale at Perugia, which is especially fine; it is much lower in proportion than the Orvieto one, and is finished with a semicircular arch. Over the door on either side is a bronze griffin overcoming a wolf, to commemorate a victory of Perugia over Siena. Another class of door which interested me a good deal, and of which there are some specimens at South Kensington (it belongs to the early part of the sixteenth century, and is therefore Renaissance), is that consisting of a flat pilaster on either side supporting an entablature, and surmounted by a semicircular canopy; each foot of the canopy is ornamented with a flower in a circle, surmounted by a five-leaved honeysuckle, and the summit has two such flowers supporting a finial. The tympanum is always filled with appropriate and characteristic sculpture.

At Venice, and now and then elsewhere, there are several specimens at Naples, and at least one in the interior of Milan Cathedral,—many square-headed doors of the Gothic period are surmounted by a peculiar and very characteristic canopy. It consists, in its simplest form, of a pointed arch, with much carving and moulding, *and much becrocketed*, supported at the sides by large finials bracketed out from the wall. The *raison d'être* of this canopy is evidently to afford an opportunity for sculpture. A good simple specimen is the south transept door of the Frari Church at Venice. Similar canopies are very common over wall tombs. Some very beautiful specimens may be seen in SS. Giovanni e Paolo at Venice.

Windows.—Some of the most characteristic Mediæval windows in Italy are, I think, the circular ones which fill the gables of almost every church built between the beginning of the twelfth and the end of the fourteenth centuries. These might have been very beautiful features; indeed, it is always a difficult task to make a circular window in a gable otherwise, but unfortunately the dislike or ignorance manifested by Italians with regard to tracery prevented their being made the most of, and, with a few exceptions, all are designed on much the same pattern,—a pattern which I do not like, because it strongly resembles, and always reminds me of a cart-wheel; but that is a matter of taste. There are three honourable exceptions: two of them the east and west windows of Siena Cathedral, which are round holes filled only with glass and stanchion-bars, and the other an early window at Toscanella, near Viterbo, which is thoughtful, and, I think, very beautiful in design. When I speak of the dislike of the Italians for tracery, I do not forget that they used it, or one kind of it, to a very large extent at Venice, but I regard Venice as an altogether exceptional city,—in architecture as in other things. And I must also make an exception in favour of some instances of plate tracery of the most exquisite beauty. I refer to the windows of the Church of St. Michele in Orte, or "Or St Michele" at Florence, and of the little Church of the Madonna dell' Arena at Padua, so well known for containing some exquisite frescos by Giotto. Mr. Ruskin, if I remember rightly, gives unstinted praise to the former in his "Seven Lamps," and says of it that "there is no more beautiful building in Italy." Unfortunately, "doctors differ," for Mr. Fergusson says in his history that it attracts attention "more on account of its curious ornaments than for beauty of design, which latter *it does not, and indeed can hardly be expected to, possess.*" I must say that, as regards the windows, I think Mr. Fergusson has made a mistake. Certainly the windows of the Padua chapel are some of the most charming and suggestive little features that I came across anywhere. I must also not forget that the tracery in Giotto's campanile at Florence is beautiful and refined in the extreme. I do not remember a single instance in an Italian building of the use of a moulded mullion (I do not regard Milan Cathedral as an Italian building). If it was necessary to divide a window, shafts with caps and (generally) bases were used, carrying arched or trefoiled heads and the frame and glass were set back to the inside of the wall. Sometimes, in very thick walls or where no glass is used, as in cloisters and towers, the shafts are double, or there is a long cushion capital similar to that found in the Saxon work in this country.

Porches.—The porches to which I referred in the early part of this paper, notwithstanding that they transgress in almost every particular the traditions which we hold, are, nevertheless, objects of the greatest beauty

and interest; indeed, in many instances the architects seem to have relied upon them for the whole effect of their fronts. The essential features are an arch, or rather a short section of a barrel-vault, projecting from the wall and resting on columns, having an iron tie-rod to resist the thrust, and the columns resting on the backs of symbolical animals,—usually lions or griffons. Sometimes, as at Ancona Cathedral, and at St. Zeno at Verona, the gabled roof is simply (so to speak) fitted over the arch; but more commonly there is a second story either of another single arch, as at Verona, Piacenza, and Parma cathedrals, or of three, as at Sta. Maria Maggiore at Bergamo (of which there is a sketch in "Brick and Marble Architecture") and the south porch of Modena Cathedral. The upper story was evidently intended as a niche for statuary, possibly for a statue of the founder, and in some cases is so used. The whole structure is generally of marble, the lovely colours of which, combined with the simplicity of design, the dignity and significance of the animals which support it, and the beauty of the carving which usually decorates it, causes the spectator to forget, or, at least, to forgive, its structural absurdities. One of the best, perhaps quite the best, of these porches is that at the west entrance of Ferrara Cathedral. It is built on the backs of a couple of conventional lions; the lower story is exactly the usual thing, but the upper one has the three Pointed arches on the front filled with tracery and resting on chevroned columns, while above the arches runs a deep frieze, representing, if I recollect rightly, the "Last Judgment," and the whole is crowned by a sculptured gable or pediment, with smaller gables facing the ends. In the four spandrels of the upper story are the symbols of the evangelists, and under the centre arch a figure of the Madonna and child. It is as suggestive a design as I have seen anywhere, and far more allied to my beloved Northern Gothic than anything else in Italy. The symbolical animals under the columns of these porches are worthy of special note; they are (I think, always) carved in red marble, and have great dignity of expression; they evidently have a symbolical meaning, and are either caressing or destroying some small figure. In guide-books they are said to represent the Church welcoming the repentant sinner or crushing heresy.

Tombs.—Tombs, free standing or wall tombs, are, owing to the climate, much more frequently found in the open air in Italy than in this country. It was very usual to put wall tombs in the west fronts of the churches, as at St. Giacomo Maggiore, at Bologna, and sometimes they are found on the other sides as well,—often treated quite as decorative features. Of the free-standing tombs, I am not sure that I do not prefer the simplest, such as the remarkably beautiful one which is bracketed out over a gateway to the north of the west entrance to Sta. Anastasia at Verona, after seeing which I was a little disappointed with the celebrated "Tombs of the Scaligeri," in the same town. I suppose I expected too much of these renowned works of art, for there seems to be a concensus of opinion that they are among the most beautiful productions of the country. Beautiful as they certainly are, I fancy I detect in them that carelessness of design of which I have spoken. It seems, for instance, a very poor expedient for getting a pinnacle to erect on the angle of the tomb of Mastino, a little colonnette to carry a platform on which a little canopied niche is built up like a separate structure or an afterthought. If it were altogether removed, the tomb would be just as complete without it. Again, if it were desired to erect an equestrian statue of the great man, surely some other position might have been found for it, which would not have necessitated truncating the cone which forms the canopy.

Campanili. — Coming to the never-failing subject of the campanili, which are such a prominent and attractive feature in all Italian towns, from north to south, I can only afford space to mention a few of them, and to point out some of what I conceive to be their excellencies and defects. The glorious campanili of Giotto, at Florence, should by right come first, but I dare neither describe nor criticise what is so well known, and has been a pet subject with all writers on Italian art. It is enough to ask those who only know it from drawings and photographs to suspend their judgment, if it be an adverse one, until they have seen it. I went to Florence feeling sure I could not like it, having judged by the framed panelling and the heavy cornice, and generally unsatisfactory outline at the summit. But the beauty and exquisite delicacy of the tracery and carving, and the tender tones of the marble which no drawing can reproduce, at once turned my prejudice into the sincerest admiration. There is a marble campanile attached to the cathedral at Siena, which, though beautiful in its way, always made me smile when I looked at it. The architect had evidently laid hold very firmly indeed of the principal that towers should grow lighter in design as they ascend, and he hit upon the very simple expedient of building first one story quite blank, then a story with a single opening in each face, then another with double openings, then triple, and so on until the topmost stage has a little arcade of six arches on each face. The principle, no doubt, is carried out to the letter, but the method is surely open to the charge of being ridiculously childish.

The characteristic towers of Northern Italy are the red brick ones which are found in every town, and indeed in many villages as well. They are of the simplest possible design, proudly, almost contemptuously plain, square in plan without buttresses or openings, and with only slight breaks in the shape of shallow projections or narrow strings until the summit is reached, when there is a double or triple opening in each face, and the whole is practically finished with a deep corbel-table and slight cornice. But on the top of this there is generally placed, without any preparation, a circular brick cone; it cannot be called a spire, and occasionally the angles are filled up with little brick pinnacles of similar design, also popped on as an afterthought. The cone and pinnacles are constructed of bricks showing circular ends on the face and giving an appearance of scales. The Campanili of St. Zeno and St. Ferno Maggiore at Verona, of the Cathedral at Piacenza, St. Barnaba, Venice, and St. Corona at Vicenza, may be taken as specimens of this class, only in the last-named some slight preparation is made for the cone by first erecting a short octagon on the top of the tower. The campanile of Parma Cathedral is similar, but the cone is of stone and octagonal. That of St. Samuele at Venice is practically the same, but displays a little more thought in design, tapering from the base to the summit and being appropriately crowned with a high pyramidal lead roof. The tower of the palace of the Scaligers at Verona is also similar, but the cornice is carried on boldly projecting corbels, and is surmounted by a beautiful little octagon with a low hipped roof. The celebrated campanile of St. Mark's at Venice was also probably intended to be something of the same sort, but it was finished in Renaissance times, and is surmounted by a solid sepulchral-looking monument, which seems as if it must necessarily break through the light arcaded story beneath. The beautiful campanile of St. Antonio at Milan is crowned with a brick cone, but is octagonal in plan and much more elaborate in design. The best view of it is to be had from the roof of the cathedral. Of all towns I have ever seen, Bologna is the place for towers. Coming up to it by the rail, which happens to be on a high level, they seem to stand up almost like the masts below London Bridge. Among them are those ridiculous specimens of engineering science, the towers called Asinetti and Garisendi, plain brick structures (the latter built on purpose to rival the leaning tower of Pisa), made to lean in opposite directions so as to increase their apparent inclination. Then there are the towers of the cathedral and Palazzo del Podesta, somewhat similar to the campanili described above, the two towers of St. Francesco, the larger of which has elaborate wall and window tracery in terra-cotta, and others that I do not now remember.

Ceilings.—A sketch of architectural features, peculiarly Italian, would not be complete, I think, without some mention of the wooden ceilings of two churches at Verona (I am told that there is a church at Venice, St. Stefano, with a similar ceiling), I mean those of St. Zeno and St. Fermo Maggiore. They are of wood, in a sort of foliated barrel-vault form. That of St. Zeno is in three curves only, with wooden ties at intervals half way up, which are probably the tie-beams of the roof-trusses. The ceiling of St. Fermo Maggiore has five curves with iron ties, also about half way up, and king-rods. The curves are divided by nearly upright faces and horizontal soffits. In both cases the lowest curve starts from the outer end of a row of wooden corbels, leaving a wide soffit between it and the wall. The curved surfaces are divided up into small coffers by narrow wooden bands, on which is a roughly-painted pattern in black, the rest being also decorated in colour. I was much charmed with these ceilings, and especially with the more elaborate one, though it, at any rate, if not the other also, must be entirely unconstructional.

Baptisteries.—There are in Italy a large number of square, polygonal, and circular churches and baptisteries; indeed, the latter, as separate buildings, are peculiar to the country. Many, such as the circular baptistery at Pisa, and those at Parma and Pistoja, are too well known to need more than mention of their names, but there is one very interesting little church, Sta. Fosca, at Torcello, near Venice (from which, in fact, Venice was first colonised), which greatly took my fancy, and of which I will attempt a short description. The plan is cruciform inside, consisting of a large square area with short, aisled nave and transepts of one bay each, mere recesses, one might call them, divided into centre and side compartments and a chancel of two bays with three apses. The side of the square is the whole width of the nave, *including* the aisles, and is worked into a circle at the top, by means of a pendentive and two arches, one over the other, at each angle. It may possibly have been intended to erect a dome, but the roof is now a flat cone, constructed very simply in wood. Externally, advantage is taken of the shortness of the arms of the cross to turn the plan into an octagon, round which runs an open cloister or loggia. The arms of the cross show over the loggia, and the circular upper part is piled up so as to form a most picturesque group.

Certosa of Pavia.—One of the most beautiful and most interesting buildings in North Italy is the monastery known as the Certosa of Pavia, situated between that town and Milan. Its georgeous marble front is covered with a perfectly bewildering mass of exquisite detail, statues in the round (about one hundred of which are life-size), vignettes, busts, and Bible history scenes in high and low relief, in niches, panels, and medallions; foliated pilasters and carved baluster colonnettes; besides moulded and inlaid work, all executed by artists of high ability, and enough in quantity to supply half a dozen such façades with interest and artistic excellence. Unfortunately, it is not enough, or perhaps is too much, to make one such front really beautiful. It serves, indeed, better than anything to point the old saying that one may have too much of a good thing. I think the real charm of the building is anywhere rather than in this front. Its grouping, as seen from various points of view in the cloisters, is wonderfully beautiful, with the central feature of piled-up colonnades and all the light elegant little pinnacles round it, and the buttresses and apses, and that always pretty feature the galleries under the cornices so common in Italy and Germany. The colour, too, of the red bricks and terra-cotta combines well with that of the stonework and plaster and the clear blue sky. The terra-cotta cloisters also are full of interest for the London architect who desires to find the right way of using that much-abused new old material. In these cloisters, too, the detail is both abundant and beautiful, and, as I have before said, all figure work is constantly varied and the interest thereby maintained.

Palazzo Communale, Piacenza.—A remarkable building, and one in some respects characteristic of a class in Italy is the Palazzo Communale at Piacenza. It is rectangular in plan, with the long side facing the great Piazza. The lower story is an open vaulted hall, of stone or marble (I am not quite certain which), with five pointed arches, on rectangular piers, on the long side, and two at each end. The upper story, which contains the town-hall, is of deep red brick, with marble quoins and cornice. On the principal face there are six great semicircular arches, very low in proportion, with wide archivolts of sumptuously moulded and carved bricks. They surround small three and four light windows. The east end has two similar arches, and a wheel-window in the gable; the other end, a square-headed window and no gable. Above the cornice rise high brick baetlements, of the swallow-tailed form used by the Ghibelline party, and at the angles solid, heavy structures, which I hardly know whether to call turrets or pinnacles. Over the centre arch of the ground-story is the balcony from which to address crowds collected on the piazza. There are

carefully-coloured measured drawings of this building on a stand in the Architectural Court at South Kensington.

Venice.—I suppose there is no town in Europe (unless it be Constantinople) so strange and interesting to every ordinary traveller as Venice,—a city without streets, in which the tramp of a horse is never heard, and no wheel-track is ever seen; in which the sea washes the very plinths and doorsteps of the houses, in which the cabs and omnibuses are boats, and the boats themselves, with all belonging to them, so different from the boats elsewhere, is something so wonderful and curious in itself to every dweller on dry land that it must of necessity awaken the interest of the most *blasé* of tourists. I shall always remember the delight of my first ride in a gondola through some of the quieter canals; the absence of rattle and tramp, and the smooth, easy, sleepy motion, the silence only broken by the regular click of the oar and the occasional cry of "Sta'i," or "Ia e," as we came round a corner; and the skill displayed in steering round the corner with the gunwale within an inch of the house wall for the whole 15 ft. or 20 ft. of its length, yet never touching it. And the architecture of Venice seems to me to be marvellously appropriate to the place; there is a lack of rigidity, even of apparent stability, about it; an unrest and a light sparkling playfulness that is charmingly in keeping with the rippling waters of the lagoon. A level string, a really vertical wall, or a surface "in winding," are hardly to be found in the whole town. It is, too, as strange and unique as the city itself and all belonging to it. Where elsewhere are to be found anything at all resembling the light arcaded fronts of the palaces, or the curious west front of St. Mark's, or the Rialto bridge,—not to speak of all the other bridges,—or even the Renaissance fronts of St. Zaccharia and the Ospedale Civile? The curiosity of these two buildings is in their gables,—if one may call them gables,—for they are semicircular, just like the canopies of the doors I have described, magnified. In the façade of the Ospedale is a not very pleasant illustration of what I called the "playfulness" of Venetian architecture; it is a representation of architectural features in perspective in the marble incrustation. There is a copy of the doorway at South Kensington. Among the number of beautiful features in Venice, the wells in the courtyards are one of the most remarkable, and deserve some notice. They are frequently and, indeed, generally, found everywhere in Italy, but nowhere treated with so much artistic skill.

Perugia.—Another town which, though in a less degree, much interested and charmed me was Perugia. It is a picturesque old place, built over the slopes of the hills all up and down, with curious arches and buttresses and odd corners, doors where one would least expect them, and windows which in a duller climate would get no light, views suddenly turning up in unexpected places, of the Apennines, with picturesque villages on prominent points, consisting of a fortified convent or monastery with its walls and turrets, and a few cottages round, or of the Umbrian valley stretching away to Lake Trasimeno, itself just hidden, unfortunately, by some low hills. The Piazza del Duomo, with the Palazzo Communale, the cathedral, and the great fountain, the finest probably in the country, is a centre of architectural interest, which however is by no means confined to that spot. The old Etruscan gate, called the Arch of Augustus, the front of the oratorio of S. Bernardino already mentioned, the Little Church of the Madonna della Luce, with its bell turret, the colour decorations in the Collegio del Cambio, the old Chamber of Commerce, and the inlaid stalls and marble decorations of S. Pietro de' Casinensi, are alone worth a journey from England to see, and they are only the more prominent of beautiful objects in the town.

In summing up this very desultory sketch of "Italy from an Architectural Point of View," I may say that, whatever may be the faults of the whole buildings, or of the features, they are never wanting in interest or suggestiveness, and if they display some lack of care in design, *that* is more than compensated for by the artistic instincts of the architects, which saved them from making gross errors, and gave a peculiar charm to even the worst of their productions. The student will never in Italy want subjects for his pencil, and if he uses the brush so much the better; for colour is a principal element of beauty in most of the work. In no part of the world, moreover, can be found so many and such beautiful examples of sumptuous work, especially in church furniture and all kinds of decoration.

I have not had time,—nor, indeed, am I competent,—to speak of the mass of pictures and of sculpture by all the best masters to be found in the galleries of almost every town, and I have also omitted all mention of the beautiful and interesting objects to be found in the museums, which are the richest in Europe; but the architectural student should make it a principal object to become well acquainted with both; for only so will he inhale that aroma of art with which the air in Italy is impregnated, as if it were one of its component gases.

In conclusion, I thank you sincerely for your kind attention, and hope that my sins, both of omission and commission, will be called attention to, and corrected by many of those present.

A brief discussion ensued, the speakers being the President (Mr. E. G. Hayes), Mr. Thomas Blashill, Mr. Sydney Vacher, Mr. Cole, Mr. H. W. Pratt, Mr. Trubshawe, Mr. W. J. N. Millard, and Mr. A. B. Pite, and a vote of thanks was accorded to Mr. Baggallay, who briefly replied.

SANITARY PROGRESS IN IRELAND AND THE LEGAL POWERS OF SANITARY AUTHORITIES IN REGARD TO HOUSES.

A LECTURE was delivered in the Theatre Royal of the Royal Dublin Society, Dublin, on Saturday, under the auspices of the Ladies' Sanitary Association, on "Some of the Legal Powers of Sanitary Authorities and Individuals with regard to Houses," by Mr. R. O'Brien Furlong, in which he explained the leading provisions of the Acts as regards the construction of houses, drainage, nuisances, disinfection, &c. With reference to disinfection, he said the law authorised the infliction of a penalty of 20*l.* on any person letting any portion of a house in which infectious disease had broken out, before such house was properly disinfected, and it further authorised a penalty of 20*l.*, or a month's imprisonment, for giving false answers to any questions that might be asked of the occupier of the house as regarded the occurrence of infectious diseases in it. It was well for people to know this now that the seaside season was approaching. This law had been put in force in England, but, so far as he knew, not in Ireland, and he hoped that whenever a violation of it was discovered, there would be no hesitation in bringing the guilty person to justice. The punishment should be imprisonment without the option of a fine. He then alluded to the dwellings of the humbler classes, and to the evils arising from overcrowding, and said it would be the merest folly, if they desired to see improvement in the public health, to be content with what the State had done. They must rather rely upon the formation of sound public opinion, with the aid of voluntary associations. He could bear testimony to the influence exerted by the Dublin Sanitary Association, in conjunction with the College of Physicians and Surgeons, and the Irish Medical Association, in procuring the enactment of the Public Health Act of 1878. That Act had effected the most marked improvement in the sanitary condition of Ireland. Since its exceptional powers came into force, the sums expended in sanitary improvements had increased enormously. The loans issued to the public sanitary authorities in Ireland for sewerage and water supply since 1876 amounted to nearly 960,000*l.*,—in seven years. In 1880, the amount so lent was 292,000*l.*, as compared with 37,000*l.* in 1876. On the census night of 1871 the number of persons in Ireland suffering from fever was 2,070,—that was typhus, enteric, and simple fever, but not measles, scarlatina, and so on. On the census night of 1881, the number suffering from fever was 1,501, showing a decrease of 7 per cent., whereas the decrease in the population in the same period was only 4·3 per cent. The Dublin Sanitary Association had much to do with the formation of the Artisans' Dwellings Company, which had done more to improve the houses of the working classes in Dublin than centuries of legislation could have effected. It provided accommodation at present for 540 families, representing more than 3,000 persons. Over 15,000*l.* had been received in rent, the bad debts not exceeding 80*l.* The great work commenced must be continued with moderation: the people must be educated up to the proper state of things, and it was the duty of such an Association as this to educate public opinion, so that not alone might the Legislature be persuaded to pass remedial laws, but that the sanitary authorities might be induced to administer them with vigour, the ratepayers contribute to them without grumbling, and all classes taught to see the need of these great reforms.

THE LONDON, CHATHAM, AND DOVER COMPANY'S NEW BRIDGE AND STATION WORKS AT BLACKFRIARS.

MESSRS. LUCAS & AIRD, the contractors for the new bridge across the Thames, and for the City and Suburban new station in connexion with it, in Queen Victoria-street, are now busily proceeding with the necessary works, on which a large number of men are engaged, and the preparations for the erection of the station and the construction of the bridge are simultaneously going forward. For the purposes of the station a considerable extent of wharf and other property, immediately opposite to the *Times* office, has been purchased, and the site is now being cleared, and excavations are in progress preliminary to the commencement of the station buildings. The land which has been obtained extends to the foreshore of the river, where the land abutments of the bridge will be erected, and at this point a coffer-dam is in course of construction in front of the wharf or river-wall, previously to the commencement of the abutment works. The station, which will extend eastward from the present railway bridge to Messrs. Cockerell's premises at Purfleet Wharf, will have a frontage to Queen Victoria-street, about 140 ft. in length. It will immediately adjoin the Blackfriars station of the Metropolitan District Railway, with which it is intended to be in communication. The booking-offices, parcel-offices, waiting and refreshment rooms, and other apartments will be formed in a large central hall on the Queen Victoria-street ground level, from which the station will be approached. From this central hall the arrival and departure platforms above will be reached by staircases on the east and west sides. There will be five of these platforms, and four lines of rails, from which it will be seen that the station will be of considerable dimensions. From the Queen Victoria-street frontage to the extreme south end of the platforms the station will, in fact, be about 600 ft. in length, a special feature of it being that the platforms will extend to about the second arch of the bridge, in the direction of the company's Blackfriars station, the bridge, about the third pier from the Surrey side, widening out in the direction of Queen Victoria-street, so as to support the pier platforms of the station.

As regards the bridge itself, the piling in the river has already been driven to a considerable extent, more particularly those portions required for the two central river piers. For the construction of the piers caissons, will be sunk down to the London clay, and then filled with concrete to form the foundations for the piers, which will be uniform with those of the present bridge; but the new bridge itself will be of entirely different construction, and, we are told, more graceful in form than the present structure. It will be nearly 60 ft. in width, and will contain five arches, three of which will be 185 ft. span each, and the other two 175 ft. span each. The Thames Iron Company are supplying the whole of the ironwork for the bridge. It is stated that, as a portion of the undertaking, it is intended to connect the Ludgate-hill station with the new one, by a covered way between Ludgate-hill and the Blackfriars station of the District Railway.

Mr. W. Mills, Mr. J. Wolfe Barry, and Mr. H. M. Brunel are the joint engineers. The cost of the bridge and station is estimated at 320,000*l.*

The Governors of the "Governesses' Home," Alexandra-road, Southport, finding it necessary to provide additional bed and sitting room accommodation, have just accepted tenders for extensions of their building. The architects are Messrs. Maxwell, Tuke, & Hurst, of Southport.

THE SPOHR MONUMENT.

ON the 5th inst., the Spohr centenary was celebrated at Cassel by the inauguration of a monument to that renowned composer, and by the performance of several of his principal works in the theatre in the afternoon and evening. The monument, a lifelike statue of the musician, was unveiled by Count Eulenburg, Chief President of the province, after an inaugural speech from Dr. Pinder, Director of the Cassel Museum. At the conclusion of the ceremony, Count Eulenburg handed over the monument, in the name of the Festival Committee, to the city authorities, for whom the chief burgomaster accepted it in a speech in which he returned thanks for the gift. The festival was attended by musicians from all parts of Germany and other countries, and was a great success.

FOREIGN NOTES.

Statues to the Humboldts.—On Friday, the 6th inst., the anniversary of the death of Alexander von Humboldt, statues of the great naturalist and of his almost equally distinguished brother, Wilhelm von Humboldt, were solemnly unveiled in Berlin. They are erected in front of the University, in the great avenue Unter den Linden.

Statue to Dupleix.—A committee has been formed in France to collect subscriptions for the erection of a monument to General Dupleix, the most formidable of the French leaders who fought against the English in Hindostan in order to prevent them from extending British power over India. It is intended to erect the statue of Dupleix in his birth-place at Landruins.

The Paris Salon.—In the next Paris *Salon*, the total number of exhibitors will be 1,554, of whom 1,236 will be Frenchmen and 318 foreigners. They comprise the following:—There will be 611 French and 188 foreign painters; 252 French and 57 foreign sculptors; 246 French and 42 foreign architects; and 127 French and 31 foreign engravers and lithographers. With regard to the nationality of the foreign artists, there come from Belgium 31 painters and 16 sculptors; Germany, 29 painters and 4 sculptors; England, 22 painters and 6 sculptors; Austria, 21 painters and 5 sculptors; Italy, 17 painters and 14 sculptors; Switzerland, 14 painters and 2 sculptors; Spain, 13 painters and 3 sculptors; Holland, 10 painters and 2 sculptors; Scandinavia, 11 painters; Russia, 8 painters and 2 sculptors; North America, 6 painters; Denmark, 2 painters; Greece and Portugal each 1 painter and 1 sculptor; and, finally, 1 sculptor from Haiti. The number of ladies who will be represented by works in the *Salon* is nearly 60, of whom 40 are French painters, 2 sculptors, and 2 copperplate engravers. The rest belong to various countries, especially Germany, Sweden, and Switzerland.

The Proposed Inland Sea in the Zahara Desert. The result of the tour of inspection M. de Lesseps has been making in Algeria has been to convince him that there is no insuperable difficulty to be overcome in realising the project of an inland sea in the Desert of Zahara, to the south of Algeria and Tunis. He finds that, to a depth of about 240 ft. the land is uniformly compact. He calculates that the necessary excavations for connecting the Mediterranean and letting in the water could be carried out with 100 dredging-machines, which would perform the work of 100,000 labourers. The reception M. de Lesseps met with among the Arab population is said to have been very friendly. He is expected to arrive back in Paris in the course of the present week.

Exhibition at Christiania.—During the present summer an Exhibition of Industry and Art will be held in Christiania, the Norwegian capital. The number of exhibitors far exceeds the most sanguine anticipations. Medals and diplomas will be awarded to exhibitors of the most meritorious articles in the various sections, the awards being made by the jury in the usual way. Great preparations are now being made for the Exhibition in the Castle Park at Christiania. The Swedish Crown Prince, Gustavus, has promised to open the Exhibition, the date fixed being his Royal Highness's birth-day, June 16th.

Competition for Design for a Model Theatre.—The Hungarian Architects and Engineers' Society has offered a prize for the best design for a model theatre, which, while reducing the danger from fire to a minimum, answers all the requirements of a modern temple of the drama.

FOREIGN COMPETITIONS.

COMPETITION is invited for designs for rebuilding the Northern Museum at Stockholm, to which foreign architects are admitted. Five prizes will be given,—one of 84*l*., one of 24*l*., and three of 17*l*. The jury consists of the committee of the museum and two eminent architects. Plans must be sent in by June 1 next, and must include estimate, plan of site (scale 1 : 400), ground-plans, sections, and perspectives (scale 1 : 200). The building is to be in keeping, architecturally, with its splendid site and national importance, at the lowest possible cost. It is to contain the usual rooms for the collections, library, store-rooms, workrooms, and rooms for the assistants. Further information may be obtained by addressing, amongst others, the director of the Northern Museum, Herr Hazelius, Nordiska Museet, Stockholm. A few copies of the programme have been sent to 46, Catherine-street, and may be had, so far as they will go, by architects who leave their card.

Designs are also invited, as we mentioned last week, for a national library at Rio de Janeiro, to the competition for which architects of all nations will be admitted. The premiums offered are liberal, 800*l*. for the first, and 400*l*. for the second. Plans must be received by June 30 next. The cost is not to exceed 100,000*l*. The selection is confided to a commission comprising the librarian, the director of archives, and three engineers (!). This latter circumstance does not look very inviting for competitors.

The Verein Deutscher Eisenbahn-Verwaltungen (German Railway Union) has issued a circular containing the regulations for the competition which takes place once in three years for prizes given for the most important inventions in railway construction and working. Competitors may send in claims from January 1 to July 15, 1884. Premiums will be given for such inventions, improvements, and literary publications as have been executed or published from July 16, 1878, to July 15, 1884. Nine prizes will be awarded for inventions and improvements,—(1) in the construction of railways (three premiums of 360*l*., 150*l*., and 75*l*. respectively); (2) in rolling-stock (similar prizes); (3) with reference to the central administration of railways and railway statistics, as well as for important publications of railway literature (three premiums of 150*l*., 75*l*., and 75*l*. respectively).

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

1,610. D. B. Gibson, Manchester. Preventing the entrance of wind, rain, and dust under doors, &c. March 30, 1883.

1,611. H. J. Haddan, London. Manufacture of tissues for a base of plaster ceilings, &c. (Com. by H. Kahls, Chemnitz, Saxony). March 30, 1883.

1,658. J. Wright, London. Manufacture of cement, &c. April 3, 1883.

1,688. H. J. Allison, London. Coloured-glass windows, &c. (Com. by J. La Farge, New York, U.S.A.) April 4, 1883.

1,690. F. P. Preston, J. T. Prestige, and E. J. Preston, Deptford, and E. W. De Rusett, Anerley. Lavatories. April 4, 1883.

1,692. W. Kemp, Miller's Dale. Manufacture of lime. April 4, 1883.

1,694. J. B. Adams and J. Telford, Liverpool. Balancing, securing, &c., sliding window-sashes. April 4, 1883.

1,705. T. C. Olney, Manchester. Hot-water apparatus for heating buildings, &c. April 5, 1883.

1,712. J. Barnes, Manchester. Damp-proof and non-inflammable material for lining walls, &c. April 5, 1883.

1,724. W. R. Lake, London. Locks and lock-gates for canals, &c. (Com. by L. Coiseau, Antwerp.) April 5, 1883.

1,728. F. Service, London. Tool for pointing the joints of brickwork and masonry. April 5, 1883.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

NOTICES TO PROCEED

have been given by the following applicants on the dates named:—

April 3, 1883.

5,708. P. Jensen, London. Manufacture of furniture, doors, window-sashes, &c., from peat moss. (Com. by T. P. Aktiebolag, Jönköping, Sweden.) Nov. 30, 1882.

5,756. W. Foot, Wellington. Bricks, blocks, and slabs for building and other purposes. Dec. 2, 1882.

5,781. G. Crofts and G. F. Assinder, Birmingham. Joints for suspending swing looking-glasses, fanlights, &c. Dec. 5, 1882.

5,876. T. H. Thompson, Manchester. Ventilating buildings. Dec. 9. 1882.

6,121. W. R. Lake, London. Water-closets and sewers and traps therefor. (Com. by C. F. Pike, Philadelphia, and E. L. Collings, Camden, U.S.A.) Dec. 22, 1882.

April 6, 1883.

5,795. J. Whitehouse and S. Peacock, Birmingham. Sash-fastenings. Dec. 5, 1882.

6,039. F. Walton, Twickenham. Mosaic floorcloths, &c. Dec. 18, 1882.

1,154. R. E. Cox, London. Smokeless stoves, &c. March 3, 1883.

ABRIDGMENTS OF SPECIFICATIONS.

Published during the Week ending April 7, 1883.

3,260. J. C. Morris, Manchester. Stair-rods. July 10, 1882. Price 2d.

These are made of wood, and have removable and enlarged ends. (Protection not allowed.)

3,472. J. Solomon, London. Cowl for chimneys. July 21, 1882. Price 2d.

This has a number of apertures governed by doors, of which those facing the wind are closed, while the others are left open. (Protection not allowed.)

3,701. C. E. Hanewauld, London. Apparatus for preventing down-draught in chimneys. (Com. by F. Haszelmann, Munich.) Aug. 3, 1882. Price 6d.

A tube is fixed to the top of the chimney, over which is passed another tube, the top of this being fitted with a projecting cap, and the wind passing under this cap creates an up-draught in the chimney.

3,793. J. S. Willway, Bristol. Combined door-mat and scraper. Aug. 9, 1882. Price 4d.

This consists of a series of parallel flat bars, which are screwed at suitable distances apart by transverse rods.

3,816. H. J. Hadden, London. Stoves or furnaces. (Com. by D. McB. Graham, Massachusetts, U.S.A.) Aug. 10, 1882. Price 6d.

A drum is fitted above the fuel in the stove through pipes in which the gases of combustion pass to the flue. Air is let in from the stove through other pipes in the drum wherein it is heated, and thence it passes to the fire and plays upon the fuel and smoke, thereby ensuring perfect combustion.

3,829. T. S. Wilson and H. T. Johnson, Manchester. Ventilating sewers, soil-pipes, &c. Aug. 11, 1882. Price 6d.

The foul gases are taken to a chamber where there is a gas-burner, above which is placed a layer of fire-clay lumps, which are maintained at a red heat. The gases passing through these are rendered innocuous.

CASE UNDER METROPOLITAN BUILDING ACT.

FEE FOR IRREGULAR BUILDING REMOVED.

FLETCHER *v.* THE PINXTON COAL CO.

THIS case was heard at the Lambeth Police Court, on the 4th inst., before Mr. Chance, magistrate. Messrs. Beale, Marigold, & Co. appeared for the defendants; Mr. Banister Fletcher for himself.

The defendants' builder had erected an office on land belonging to the Midland Railway Company between Steedman and Amelia streets, Walworth. The District Surveyor (Mr. Banister Fletcher) had served a notice requiring this office to be amended in conformity with the Act. Eventually, instead of amending, the defendants removed the building entirely.

Messrs. Beale, Marigold, & Co. contended that no fee was payable, because:—1. The building was not a building within the Act; (2) the building was on land belonging to the railway; (3) the office was used in conjunction with the railway business, therefore was exempt under section 6 of the Metropolitan Building Act, 1855, and also by reason of the special Acts obtained by the railway for the formation of this coal depôt at Walworth.

The magistrate decided the District Surveyor was entitled to his fee, and made an order for the payment of the same, with costs.

City of London College.—The Prince of Wales has consented to open the new building of this College, Moorfields, at an early date.

SUGGESTIONS FOR THE CONDUCT OF ARCHITECTURAL COMPETITIONS,

ADOPTED BY THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a special general meeting of this Institute, held on Monday evening last, Mr. Horace Jones, president, in the chair, the notice convening the meeting having been read, it was moved by Mr. Alfred Waterhouse, A.R.A., Member of Council, and seconded by Mr. James Brooks, Member of Council, that the revised paper, entitled "Suggestions for the Conduct of Architectural Competitions," presented to the business meeting held on the 8th of January, 1883, be substituted for the Institute paper sanctioned in 1872, and entitled "General Regulations for the Conduct of Architectural Competitions."

Reference was made to the notice of motion by Professor Kerr, Fellow, the memorials of the Leeds Architectural Society and the Liverpool Architectural Society, and the "Laws for the Control and Conduct of Architectural Competitions," suggested by Mr. H. Hardwicke Langston, Associate, printed in No. 16 of the Journal of Proceedings, 1881-82. After a discussion, in which, besides the members above mentioned, and the President, the following joined, namely: — Messrs. Arthur Cates, Octavius Hansard, and Professor T. Roger Smith, Members of Council; Messrs. Cole A. Adams, T. Blashill, Henry Dawson, T. Porter, L. W. Ridge, E. C. Robins, F.S.A., Fellows; Messrs. E. E. Hollis and T. M. Rickman, F.S.A., Associates; and Mr. F. C. Penrose, M.A., past vice-president,—it was

Resolved that, subject to a few alterations agreed to, the revised paper entitled "Suggestions for the Conduct of Architectural Competitions," presented to the last business meeting, be substituted for the paper sanctioned in 1872, and entitled "General Regulations for the Conduct of Architectural Competitions," and that the said revised paper do stand as follows:—

SUGGESTIONS FOR THE CONDUCT OF ARCHITECTURAL COMPETITIONS.

1. The promoters of an intended competition should, as their first step, appoint one or more professional assessors, architects of established reputation, whose name or names should be published in the originnl advertisements and instructions, and whose decision should govern the selection of the designs in all stages of the competition.

2. The duty of these assessors should be:—

a. To draw up the particulars and conditions as instructions to competitors, or to advise upon and, should it be necessary, revise or supplement them if already drawn up.

b. To determine which of the designs conform to the instructions.

c. To exclude all others. And

d. To advise the promoters on the relative merits of the designs admitted to the competition.

3. Every member of the body promoting the competition, and every assessor engaged upon it, should abstain absolutely from taking part in the said competition, or from acting as architect in the execution of the proposed work.

4. The number and scale of the required drawings should be distinctly stated, and they should not be more in number or to a larger scale than necessary to clearly explain the design. If perspective views be required, they should be uniform in size, number, mode of colouring, &c.

5. Competitions should be initiated either (A) by inviting preliminary sketches, involving only moderate cost to each competitor, preparatory to a final competition; or (B) by invitation without sketches; or (C) by personal invitation.

If (A)—By advertisement, inviting architects willing to compete for . . . . (*here describe the intended work*) to send in their names by a given day, on receipt of which each applicant should be supplied with the instructions prepared under the advice of the professional assessor or assessors. Each applicant, from such instructions, should send in by a given date a Sketch Design (*here describe the limit and character of such sketches*). The promoters, with the advice of the professional assessor or assessors, should select from such sketch designs not less than . . . . (*here specify the number*), the authors of which should be invited to join in a final competition, in which each should receive £ . . . . (*here state the amount*) for the preparation of his design. From these designs a choice should be made of the architect to carry out the work.

If (B) without sketches—By advertisement inviting architects willing to compete for . . . . (*here describe the intended work*) to send in their names by a given day, with such other information as the candidate may think likely to advance his claim to be admitted to the competition. From these names the promoters, with the advice of the professional assessor or assessors, should select . . . . (*here specify the number*) to compete, and each competitor thus selected should receive £ . . . . (*here state the amount*) for the preparation of his design. From these designs a choice should be made of the architect to carry out the work.

If (C)—By personal invitation to a limited number of selected architects, to join in a competition for . . . . (*here describe the intended work*), each competitor to receive £ . . . . (*here state the amount*) for the preparation of his design. The author of the design which may be awarded the first place in point of merit should be employed to carry out the work.

In each case (A), (B), and (C) the amount of remuneration for designs should be fixed by the promoters, acting under the advice of the professional assessor or assessors.

6. Each design should be distinguished only by a motto or device, and any attempt to influence the decision of the promoters, or of the assessor or assessors, should disqualify a competitor.

7. A design should be excluded from a competition,—

a. If sent in after the period named (accidents in transit excepted);

b. If in violation of the instructions;

c. If it do not substantially give the accommodation asked for;

d. If it exceed the limits of site; and

e. If the assessor or assessors (with or without the assistance of a surveyor) should determine that its probable cost will exceed the intended outlay (if specified in the instructions), or the estimate of the competitor should no outlay be specified.

8. It is desirable that all the submitted designs in a final competition under section (A) of clause 5, except any excluded under clause 7, should, with the consent of their authors, be publicly exhibited after the final award. The decision of the assessor or assessors and of the promoters should be published at the time of exhibition.

9. The work, if carried out in any shape, should be placed in the hands of the architect whose design has been adjudged to be the best, and he should be placed in exactly the same position, in relation to the employer and the intended work, as he would have been had he alone been professionally consulted. In case a competition has resulted in the selection of an architect, and the instructions to him to proceed further in the matter are not given within twelve months from the time of the architect being so selected, he should be paid at the usual professional rate, under the advice of the assessor or assessors, exclusive of the sum paid to him in common with the other competitors. Such payment to be taken on account of commission, should the work be carried out at a future time under his superintendence from the design submitted by him in competition.

*** A correspondent ("Junius") complains that a member was not allowed to move an amendment, on the ground that he was an Associate. This was not the fault of the chairman. The regulation may be right or wrong, but so long as it exists the chairman must act in accordance with it.

RIGHTNESS IN ART.

SIR,—In a letter that I addressed to you, printed in the *Builder* of February 3rd, I broached the theory that *rightness* in art is the virtue that constitutes excellence and mastery, and that exhortations to be original in any other sense than this only tend to promote peculiarity or affectation in style. The paramount aim of the artist, as of the man, being to be right, this evangel of rightness links the practice of art with the moral conduct of life,—with the moral rule, in fact, of nature. I was therefore gratified to find that in a leader in the *Times* of Good Friday last, on the 400th centenary of the birth of Raffaelle, the writer ascribed the transcendant excellence of the great painter to *rightness* in the conception and treatment of his works. It is of very considerable advantage to discussion to sum the purpose of art in that one simple general expression of *rightness;* for, let our thoughts wander as they may in the endeavour to analyse it, it serves as a pole star, by which the veering intellect may be brought up to its true course. It is to the long entombment of this master principle that all the vagaries, those riotous brushings and chisellings of modern art, may be attributed, for they are really due to false leading, to misconceptions founded on some too narrow or special basis, either of literal imitation, of impressionism, or of some one or another one-sided view of nature. But the evangel of rightness points to the one all-including and leading principle, and prompts the artist to determine what is the worthiest, the noblest work for the brush and for the chisel. It is the resurrection of this vital and vitalising principle, indeed, that constitutes the true Renaissance.

It has long been the custom for art teachers to lay great stress upon the paramount importance of being original, but I am, myself, inclined to believe that it is to this endeavour to be above all things original,—to this effort to do something strikingly new,—that may be imputed most of those affectations which have of late afflicted the fine arts. It was that *rightness*, as the writer in the *Times* justly observed, that gave Raffaelle pre-eminence in art, for there is in the possibilities of the pictorial treatment of any subject one right and best way, and all other ways but that one right way, although they might, in some sense, be called original, would be more or less peculiar, eccentric, or affected,—inferior to that one central or typal form of its embodiment. This view may be illustrated by the famous cartoons of Raffaelle. Persons who do not know in what the highest artistic excellence consists are frequently disappointed, when looking at them, at not finding any evidences of either exact imitation or of technical display. The great painter did not aim at these minor and inferior qualities; his main and masterful object was to present that grand series of subjects from the Acts of the Apostles, each one in its best or right point of view,—to give it its central, typal, or most impressive form. Let any painter attempt to design anew, to make an original composition, of any one of that series of subjects, and he will find that, although he may have the power of designing it differently, and to exhibit originality, if he so please to call it, yet that it would be inferior in form to the presentment of the same subject by Raffaelle. The endeavour to attain to rightness in the embodiment of a subject, too, begets a moral habit of thought, which ultimately leads to a right solution of subject. It may possibly be urged that Raffaelle and the other great artists of his time had an incentive to rightness, to great motives of action, from the important public works that were entrusted to them, and I, myself, have not the slightest doubt that this was the case. Hence the great importance of mural decoration in the leading of the arts of design,—the vast importance of this branch of art, which has been so long, so persistently, neglected in England. W. CAVE THOMAS.

"THE DECORATION OF THE CENTRAL HALL, HOUSES OF PARLIAMENT."

SIR,—I have just seen an article in your paper of the 7th inst., in which some observations which I made in the House of Commons upon the "Decoration of the Central Hall" are severely criticised. I must therefore ask your permission to offer a few remarks upon this subject, which, whatever you may think, interests me greatly. I will not attempt to argue whether Mr. Poynter's "St. George" is a fine work or a failure—that is a matter of taste upon which opinions may be and are widely different. But not myself professing to be a judge of art, and having no knowledge of it except that which I have derived from a long and careful study of the old masters, I am persuaded that the expenditure of public money upon a companion to St. George, or upon such designs as Sir F. Leighton and Mr. Poynter have proposed for St. Paul's, would only be "throwing good money after bad," and though I am not so hopeless about the future of British art as to be without the expectation that a painter may eventually arise amongst us fully capable of dealing with the exigency, yet until that time comes I should wish the "Commissioner of Works" to rest upon his oars and keep the public purse-strings firmly tied.

In order to justify a "waiting game," I have only to refer you to the statue of Earl Russell, which has lately been set up in the Central Hall, and which, clothed in an unreal imitation of modern costume, seems to hurl defiance at the memory of the late Sir Charles Barry, and to proclaim the small modicum of veneration which modern "committees of taste" feel for the teaching of the ancients. It is alleged, however, by your critic that I have made an "absurd suggestion" by contending that the spaces in the Central Hall should be filled with paintings in oil. Now, upon this point I desire to reply that if my assailant would be good enough to visit Venice, or, at all events, consult any Venetian guide-book of respectable authority, he would learn that whenever Messrs. Titian, Tintoretto, Paul Veronese, Pordenone, Palma Giovane, and other distinguished artists of the sixteenth and two following centuries, received commissions to decorate the public edifices of Venice, it was their invariable practice to fill

spaces such as those which are now vacant in the "Central Hall," not with frescoes, not with mosaics, but with *paintings in oil*, and the results, as everybody knows, have not been deemed "absurd" by the verdict of posterity, but have, on the contrary, been almost unanimously approved. If, therefore, a "mere schoolboy," according to your critic, will in these days have noticed enough to be aware that oil-paintings "are worse than useless for this purpose," it follows that the conclusions of the enlightened schoolboy are entirely at variance with the principles and practice of the "ill-instructed" artists to whom I have referred above. I will not trespass further on your space, except to remind your critic that a little knowledge is a dangerous possession.

GEORGE CAVENDISH BENTINCK.

April 11th.

GRATITUDE.

ST. PAUL'S CHURCH, CAMDEN-SQUARE.

SIR,—The public is not altogether unacquainted with proceedings occurring during the last few months in connexion with the above church, evidently resulting from the fact of a generous donor,—a member of the congregation,—giving, to the extent of 700*l.* towards the alteration and beautifying of the church, and, astonishing to say, the surveyor for the church sent him an account of 12*l.* 12*s.* for his fees in overlooking a small portion of the above works, although he had received no instructions or order whatever from the donor, as his services had been promised by the vicar (Rev. E. R. Adams). Notwithstanding the strange nature of the claim, it was carried into the Bloomsbury County Court, a proceeding which seems very much like returning evil for good, and which, if generally adopted, would be likely to affect the interest of churches in the future, as it has the appearance of taxing donors for their liberal gifts.

FAIR PLAY.

BUILDINGS BETWEEN LEADENHALL MARKET AND LEADENHALL-STREET, E.C.

SIR,—With reference to the remarks in your last week's issue on the new buildings between Leadenhall Market and Leadenhall-street, the parties interested ask us to request you to add the following particulars:—

That Messrs. W. Shepherd and T. Boyce are not the contractors, but the owners, holding leases direct from the City; also, that Mr. Brunton acted as foreman for Mr. Shepherd; that Mr. Seale executed the carving for him; and that Mr. W. Thompson, architect, of 72A, Old Broad-street, was associated with us for this portion of the work. Mr. Cornish was the foreman acting for Mr. Boyce for the Metal Exchange and Offices in the block erected by him, and Mr. A. M. White executed the carving.

J. & J. S. EDMESTON.

Books.

Hydraulic, Steam, and Hand Power Lifting and Pressing Machinery. By F. COLYER, M.I.C.E., M.I.M.E. London: E. & F. N. Spon.

THE facts collected in this useful book are such as, with a few exceptions, have been derived from the author's own experience. Assuming that he is addressing chiefly practical men, he has not gone into any rudimentary descriptions, but has mentioned only such details as may be required for practical purposes. The work has been written in a concise form, and treats successively of hydraulic, steam, and hand power lifting machinery, and hydraulic pressing machinery. In an addendum reference is made to Clark & Standfield's hydraulic lift for railway trains. The author, by applying the principle of hydraulics in a judicious manner, has succeeded in pressing a great many practical facts and data into a very limited compass, and thus proved that the practice of engineering may be usefully introduced also in bookwriting. For this reason alone, if there were no other, the work will be welcomed by all engineers whose practice has not been in the particular branch of engineering with which it deals, as well as by architects and users of lifting and pressing machinery, who will by its aid obtain an insight into the same, and to whom it will serve as a guide. A special and noteworthy feature of the volume consists in the many excellent drawings, which make up half its bulk.

Practical Mechanics. By Prof. J. PERRY, M.E. With numerous illustrations. London: Cassell & Co., 1883.

THIS is an attempt to put before non-mathematical readers a method of studying mechanics. With this view, the author advises the student not merely to read the book, but to study mechanics in the manner recommended therein. Should the student follow that advice, the author feels quite sure that he will gain in a short time such a working knowledge of the subject as will well repay his labour. The mental training acquired in this way is, he thinks, of a kind not inferior to that of the study of ancient classics and Euclid.

Miscellanea.

Society of Arts.—The following are the dates and arrangements for the forthcoming meetings of the Society of Arts:—Ordinary meetings, Wednesdays,—April 11, "The Portrush Railway and Transmission of Power by Electricity," by Alexander Siemens and Edward Hopkinson, D.Sc; April 18, "The Government Patent Bill," by H. Truman Wood, B.A., Secretary of the Society; April 25, "Economy of Sanitation," by Captain Douglas Galton, C.B., F.R.S.; May 2, "The Comparative Claims of Etching and Engraving to rank as Fine Arts," by Seymour Haden; May 9, "English and Foreign Silver Work, with some Remarks on Hall-marking," by Wilfred Cripps, F.S.A. Applied Chemistry and Physics Section, Thursdays,—April 12, "The Formation of Diastase from Grain by Moulds," by R. W. Atkinson, B.Sc.; May 24, "The Development of Electric Lighting," by J. E. H. Gordon, B.A.; April 26, "A New Process for the Separation and Recovery of the Volatile Constituents of Coal," by T. B. Lightfoot, M. Inst. C.E. Indian Section, Fridays,—April 20, "The Fisheries of India," by Surgeon-General Francis Day; May 4, "Some Notes on the Domestic Architecture of India," by C. Purdon Clarke.

New Members of the Royal Institute of British Architects.—At the business meeting of this Institute on Monday evening last, the following gentlemen were balloted for and declared to be duly elected. As Fellows: Mr. Alexander Hannam Edmonds, of 32, Colehernе-road, West Brompton, S.W.; Mr. Frederick William Stevens, of the Indian Public Works Department, Bombay; Mr. Henry Petit, Associate, of 26, Welbeck-street, Cavendish-square, W.; and Mr. Henry Hewitt Bridgman, associate, of 42, Poultry, E.C. As Associates: Mr. Arthur Charles Wissenden, of 73, Maison Dieu-road, Dover; Mr. Percy Hunter, of 17, Southampton-street, Bloomsbury, W.C.; and Mr. Edward Prioleau Warren, of 8, Gray's Inn-square, W.C. The three gentlemen last-named had previously passed the Examination in Architecture.

Worms on Lawns may be destroyed by a solution of common salt and corrosive sublimate. Prepare the solution by dissolving in hot water two handfuls of salt and one ounce of corrosive sublimate, and then mix with nine gallons of water. The best time to apply the solution is immediately after rain, as the worms are then near the surface. The worms that come to the surface after the application should be swept away and destroyed, and care be taken to place them out of the reach of poultry.—*The Gardeners' Magazine.*

Yarmouth.—Plans have been prepared by Messrs. Bottle & Olley, Great Yarmouth, for extensive additions to the churches of St. John and St. Andrew, in Great Yarmouth. The additions to St. John's comprise new south transept, south chancel aisle, turret, corridor, clergy vestry, and an octagon-room of 27 ft. diameter, and alterations to chancel. The additions to St. Andrew's are new north aisle, porch, and large room in connexion with the church and school.

Lower Norwood.—There has just been placed in St. Luke's Church, Lower Norwood, a stained-glass window, presented by Mrs. Bonner, formerly a member of the congregation, in memory of her late husband. The subject is "Christ among the Doctors." It is the production of Messrs. W. M. Pepper & Co., of 381, Euston-road, and is the third window placed in the same church by that firm. The lady mentioned has commissioned Messrs. Pepper to execute a fourth window for the church.

Sierra Leone.—Mr. Robert E. Pownall, A.R.I.B.A., for many years an active member of the Architectural Association, has been appointed Director of Public Works in the colony of Sierra Leone. He has resigned his seat on the committee of the Association, and will take with him to his new sphere of work the best wishes of all who know him.

Blundellsands.—A window, by Messrs. Mayer & Co., representing Christ blessing Children, has just been erected in St. Nicholas's Church, Blundellsands, near Liverpool. It is the gift of the children belonging to the congregation.

The County Magistrates of Somerset have elected Mr. William John Willcox, of Bath, architect, by the large majority of 50 to 9, to the County Surveyorship, rendered vacant by the retirement of Mr. Whitehead.

The New Brentford Union Schools at Isleworth, erected at a cost of 20,000*l.*, to accommodate 300 children, were opened on the 11th by Sir Charles Dilke, the President of the Local Government Board. The schools occupy 3¼ acres of land in front of the Union Workhouse. At the luncheon, Sir Charles Dilke, in replying to the toast of "The Local Government Board," spoke in favour of giving local liberty to guardians, asserting that it was the duty of one in the position such as he occupied of presiding over the Local Government Board, which took over the functions of the old Poor Law Board, to do what was possible in the direction of that local liberty, leaving to guardians to try experiments, to some extent, for themselves; believing that they were as likely to know what was good for those who elected them, and to look after their interest, as any other body in the country. He referred to the fact that although the population of the Union had doubled within the last twenty years, and the rateable value of the Union had increased within the last ten years from 310,000*l.* to 530,000*l.*, there had been a decrease within the later period in the proportion of paupers, or those in receipt of relief, from one in fourteen to one in thirty-nine; and also a decrease in that time of the portion of the rate which went towards relief from 10d. to 7¼d. Sir Charles Dilke is working at the Local Government Board, and it may be expected will do good. It is possibly not exactly the position he would choose for himself, but his disposition is such that he will be sure to work, and in a good direction. We have been looking for an opportunity to give the right hon. gentleman a hint or two, and may yet find it.

The New Market for West London.—The Chelsea Vestry, acting on the recommendation of the Committee of Works, have come to a final agreement with the promoters of the South Kensington market scheme, who seek powers to establish a market in the parish of Chelsea (near South Kensington station) for the supply of fruit, vegetables, meat, poultry, and fish. The promoters in their last concessions have agreed that the market shall be completed within five, instead of seven years, as first proposed; not to exercise compulsory powers of purchase after the expiration of two years from the passing of the Act; not to extend the limits of the market from time to time; and to execute the works to the satisfaction of the vestry. The vestry have also caused to be inserted, for the protection of the parish, stringent clauses to prevent the use of the market as a railway depôt; to secure the rating of the market; and to ensure that the site is used for no other purpose than "a market, market buildings, dwelling-houses, shops, first-class hotel, or theatre." The plans of the latter, to which the promoters agree, shall be submitted for the approval of the vestry. Lastly, the promoters have met the wishes in regard to the provision of artisans' dwellings in the place of those displaced by the construction of the market.

The Finsbury Technical College, Tabernacle-row.—The summer term of the Technical College of the City and Guilds of London Institute for the Advancement of Technical Education commenced on Thursday, the 12th inst., when the College opened for the reception of new students. Work began on the 13th. The programme is a very comprehensive one, including instruction in nearly all the branches of applied art, chemistry, mechanics, and physics. The evening courses are specially intended for those technically employed during the day, and as the fees are merely nominal, they are within the reach of all working men. While the courses are mainly intended for those engaged in technical work, some of them will be found of interest to the general public. This is especially the case with the course of lectures for persons engaged in the building trades. This course, delivered by Professor H. E. Armstrong, Ph.D., F.R.S., on Tuesday evenings, is intended to give information of importance not merely to those actually engaged in the building trades, but to all householders, &c.

National Health Society.—As already mentioned, an exhibition of sanitary domestic appliances, hygienic dress, and decoration, will be held at Humphreys' Hall, Albert-gate (opposite the Barracks, Knightsbridge), in June next. A meeting has been fixed for May 9th, at five p.m., at Grosvenor House, to promote the objects of the society, the Duke of Westminster to preside. It is hoped that all members and their friends will attend.

Heating Houses.—There are only two ways, says the *Engineer*, in which dwelling-houses can be heated,—namely, by high temperature radiant heat, or by hot air. The former is produced by the open fire, and by it alone. The latter is obtained in various ways too numerous to particularise. We may cite one for convenience, namely, the well-known hot-water pipe apparatus of conservatories and churches. The question whether we shall use hot air or radiant heat in our rooms is by no means one to be lightly passed over. Instinct tells us to select radiant heat, and instinct is quite right; and it is so because radiant heat operates in a very peculiar way. It is known that as a matter of health it is best to breathe air considerably below the natural temperature of the body,—98 deg.; in air heated to this temperature most persons would in a short time feel stifled. But it is also known that the body likes, as far as sensation is concerned, to be kept at a temperature as near 98 deg. as may be, and that very much higher temperatures can be enjoyed; as, for example, when we sit before a fire, or bask in the sun. Now it so happens that radiant heat will not warm air as it passes through it, and so, at one and the same time, we can enjoy the warmth of a fire and breathe that cool air which is best suited to the wants of our system. Herein lies the secret of the popularity of the open fireplace. But in order that the open fireplace may succeed, it must be worked within the proper limits of temperature. If air falls much below 40 deg. it becomes unpleasant to breathe; and it is also very difficult to keep the body warm enough when at rest by any quantity of clothes. In Russia and Canada the temperature of the air outside the houses often falls far below zero, and in the houses it cannot be much above the freezing-point. Here the open fire fails; it can only warm air by first heating the walls, furniture, and other materials in a room, and these, in turn, heat the air with which they come in contact. But this will not do for North American winters; and accordingly in Canada and the United States the stove or some other expedient for warming air by direct contact with heated metal or earthenware is imperatively required. But this is the misfortune of those who live in cold climates, and when they ask us to follow their example and take to close stoves and steam-pipes, and such like, they strongly remind us of the fable of the fox who had lost his tail. How accurately instinct works in the selection of the two systems is demonstrated by the fact that a succession of mild winters is always followed in the United States by an extended use of open grates; that is to say, the English system becomes, or tends to become, fashionable, while, on the other hand, a succession of severe winters in this country brings at once into favour with builders and others a whole host of close stoves and similar devices which would not be looked at under more favourable conditions of the weather. While English winters remain moderately temperate the open fireplace will enjoy the favour it deserves, as not only the most attractive, but the most scientific apparatus available for warming houses.

Calcutta International Exhibition.—Communications recently received from the Vice-President of the Executive Committee at Calcutta (the Hon. Colonel S. T. Trevor, R.E., joint secretary, Government of Bengal, Public Works Department) are to the effect that all the necessary annexes in course of erection adjacent to the India Museum will be completed by July or August. A large space on the Maidan, facing the Museum, has been enclosed, and will be devoted specially to machinery in motion, agricultural implements, &c. Gas and water will be available throughout the building. The arrangements in regard to lighting are now under consideration. It is proposed that, for this purpose, the electric light should be employed. A deep reservoir, covering an area of nearly 90,000 square feet, will serve for exhibiting specimens of native boats, and for displaying diving apparatus, life-saving apparatus, including boats and steam-launch machinery. In considering the allotments of space, priority will be given in accordance with the dates of the applications received through the official agent, No. 4, Westminster Chambers, Victoria-street, London.

Proposed Municipal Offices, Nottingham.—The designs submitted in competition for the proposed municipal offices, Nottingham, are now hung in the Exchange Rooms, and may be inspected.

International Electric Exhibition, Vienna.—In consequence of an intervention by the Austrian-Hungarian Embassy at St. Petersburg, and a report of the Russian Minister on Finances, the Emperor of Russia has allowed the Imperial Russian Technical Society at St. Petersburg for forming a Russian section at the International Electric Exhibition at Vienna the sum of fifteen thousand roubles. At a meeting held on the 19th of March (old style), the president of the above-mentioned society, Prince Kotschubey, informed the members of this Imperial resolution, and the chairman of the electricians, Mr. Welitschko, who likewise represented the Russian department at the Paris Exhibition, 1881, has been entrusted with the organisation of the Russian exhibition group.

Fire.—The town-hall at Rochdale, which was built at a cost of many thousands of pounds, was found to be on fire on Tuesday night. The octagonal spire was entirely destroyed, but the hall itself was saved. By one o'clock in the morning the flames had been all but extinguished.

TENDERS.

For the erection of swimming-bath at the Seamen's Orphan Asylum, Snaresbrook, Essex. Mr. J. T. Bressy, architect:—

Perry & Co.	£1,859 0 0
Parmenter	1,730 0 0
Rider & Sons	1,598 0 0
Harris & Wardrop	1,584 0 0
A. Read	1,518 0 0
Harper	1,503 0 0
F. & F. J. Wood	1,493 0 0

For additional workshops, Norfolk Foundry, Ecclesfield. Messrs. Dixon & Moxon, architects, Barnsley:—
T. F. Troop, Barnsley (accepted for the whole work).

For erecting nineteen houses and stables at Stoke Newington, for the Incorporated Society of Licensed Victuallers. Mr. H. J. Newton, architect:—
Royal (accepted) £8,332 0 0

For alterations and enlargements of No. 56, Broadmead, Bristol, for Messrs. Rose & Harris. Mr. Herbert J. Jones, architect:—

		Old Materials.
Cowlin & Sons	£1,734 0 0	£30 0 0
Howell & Sons	1,440 0 0	35 0 0
Veals	1,434 0 0	50 0 0
Eastabrook & Sons	1,382 0 0	25 0 0
Green	1,378 0 0	27 10 0
Humphreys	1,340 0 0	87 0 0
Bastow	1,317 0 0	50 0 0
James	1,299 0 0	35 0 0
Davis	1,295 0 0	65 0 0
Saise & Son	1,295 0 0	35 0 0
Lewis & Edbrooke	1,286 0 0	56 0 0
Hatherley	1,225 0 0	—
Church, Bristol*	1,208 0 0	108 0 0

* Accepted.

For the conversion of a silk-mill into stores and offices for the Star Tea Company, Derby. Mr. R. W. H. Mason, architect, Derby:—

J. Wood	£585 12 0
Ford & Co.	420 0 0
F. Slater	365 0 0
W. Walkerdine (accepted)	347 0 0

For the construction of coffee-roasting and grinding mills, engine-house, mess-room, &c., for the Star Tea Company, Derby. Mr. R. W. H. Mason, architect, Derby:—
W. Walkerdine (accepted at a schedule of prices).
Machinery by Faulder, of Stockport.

For alterations and additions to The Cedars, Breadsall, for Mr. Joseph Cadman. Mr. R. W. H. Mason, architect:—

Ford & Co.	£537 0 0
J. Wood	536 6 0
W. Walkerdine (accepted)	460 0 0
F. Slater	455 10 0

For building a pair of semi-detached residences for Mr. S. Hurdle, at Erith, Kent. Mr. Henry Roberts, 113, Lewisham-road, architect:—
G. W. Sly, Greenwich (accepted).

For the erection of bakery at the Workhouse, Marloes-road, for the Guardians of St. Mary Abbotts, Kensington. Messrs. A. & C. Harston, 15, Leadenhall-street, architects:—

Warr	£637 0 0
Martin & Goddard	546 0 0
Egan & Co.	543 0 0
Seward	464 0 0
Nightingale	463 0 0
Ridout (informal)	447 0 0
Hunt & Challis	441 0 0
Reeves	423 0 0
A. G. Bolding, George-street, Portman-square (accepted)	287 0 0

Ovens, Machinery, and Fittings.

Smith & Son, York-street, Lambeth (accepted) £448 0 0

For new sanitary fittings to the Infirmary, Marloes-road, Kensington, for the Guardians of Kensington. Messrs. A. & C. Harston, architects:—

Jeffrey & Burton	£2,314 0 0!
J. & F. May	1,250 0 0
Lucas & Son	1,240 0 0
Bolding	1,227 0 0
Jeakes & Co.	1,172 7 6
Crapper	989 0 0
Stidder	878 0 0
Clark, Bunnett, & Co., Rathbone-place (accepted)	850 0 0!

For the erection of a Masonic Hall for the Clausentum Lodge, No. 1,471, at Woolston, near Southampton. Mr. W. H. Mitchell, architect:—

Stevens & Sons	£1,450 0 0
Brinton & Bone	1,405 0 0
W. H. Chapman	1,338 0 0

For alterations, &c., to premises, Upper-street, Islington for Mr. Rackstraw:—

Williams & Son	£3,767 0 0
Grover	3,688 0 0
Smith Bros.	3,270 0 0
Coombs	3,168 0 0

For rebuilding two houses and shops on the site of Nos. 177, 179, and 181, New Kent-road, S.E. Messrs. George Lansdown & Harriss, architects:—

Howard & Dorrell	£1,770 0 0
J. W. Falkner	1,740 0 0
H. & E. Lea	1,718 0 0
Canning & Mullins	1,630 0 0
Tarrant & Son	1,628 0 0
W. Smith	1,600 0 0
W. & F. Croaker	1,576 0 0
J. Marsland	1,555 0 0
R. W. Edgley (accepted)	1,366 0 0

For a new farm cottage at the Vicarage Farm, Thurleigh, Beds, for the Rev. B. Trapp, vicar. Mr. John Day, architect:—
W. Wade, St. Neots (accepted) £269 5 0

For additions to the Vicarage at Stow Longa, Huntingdonshire, for the Rev. G. E. Sharland. Mr. John Day, architect:—
W. Osborne, St. Neots (accepted) £754 10 0

For a new rectory at Upton-with-Coppingford, Huntingdonshire, for the Rev. J. A. Lawson, rector. Mr. John Day, architect:—
W. Osborne, St. Neots (according to schedule).

For a new cricket pavilion for the Bedford Grammar School. Mr. John Day, architect:—
Messrs. Corby & Son, Bedford (accepted) £451 14 6

For additions to Wadsworth House, Kimbolton-road, Bedford, for Mr. Thos. Bull. Mr. John Day, architect:—

G. Haynes, Bedford (accepted)	£250 0 0
Bellhanger and gasfitter extra	31 5 6

For new billiard-room at the Bedford Conservative Club, St. Loyes. Mr. John Day, architect:—
G. Todd, Bedford (accepted) £268 0 6

For a new vicarage for the parish of Holy Trinity, Bedford. Mr. John Day, architect:—
S. Foster, Kempston and Bedford (accepted)... £1,430

For alterations to Nos. 43 and 44, High-street, Hampstead. Messrs. Ebbetts & Cobb, 115, Strand, architects:—

J. Nichols	£163 3 6
J. Williamson	125 7 6
Langler & Pinkham	97 0 0
Steel Bros.	69 0 0

For repairs and conservatory to Huntingdon House, Hornsey, for Mr. S. W. Francis. Mr. Walter Graves, architect:—

Mansfield & Co.	£440 0 0
J. O. Richardson	327 0 0
Alldis Bros.	324 0 0
Goad	319 0 0
Spencer & Co.	302 0 0
Williams & Son	263 0 0

For alterations and additions to No. 574, Old Kent-road, for Mr. Herbert Clarke. Mr. John Groom, architect:—
J. O. Richardson (accepted).

For dwelling-house and surgery in Streatham High-road, for Mr. J. W. Roughton, M.D. Mr. F. Wheeler, architect:—
Hill Bros., Streatham (accepted) ... £1,565 0 0

Accepted for works required to be done during the space of one year by the Hornsey Local Board. Mr. T. de Courcy Meade, surveyor:—

Scavenging and Dusting.

Hodson & Smith, Tottenham £240 0 0

Street-Watering and General Cartage Work.

Jackson & Son, Finsbury Park (according to schedule).

Asphalte Paving.

The French Asphalte Company, Cornhill (according to schedule).

Street Cleansing.

Jackson & Son, Finsbury Park 845 0 0

Road Materials.

E. Heard, Hoxton (according to schedule).

Mason and Paviors' Work.

Aspinall & Son, Hoxton (according to schedule).

Sewer Jobbing Works.

Dunmore, Crouch-end (according to schedule).

Accepted for the making up of several private roads, in the Hornsey Local Board District. Mr. T. de Courcy Meade, surveyor:—

St. Joseph's-road.

Pizzey, Hornsey £215 0 0

St. Anne's-road.

Pizzey, Hornsey 70 0 0

Orchard-road.

McKenzie, Williams, & Co., Finsbury 284 0 0

Holmesdale-road (private portion of).

McKenzie, Williams, & Co., Finsbury 161 0 0

Parkhouse-road.

Pizzey, Hornsey 388 0 0

Bishop's-road.

Pizzey, Hornsey 372 0 0

Bloomfield-road.

Pizzey, Hornsey 374 0 0

Broadlands-road.

Pizzey, Hornsey 624 0 0

Northwood-road (sewer).

Dunmore, Crouch-end 335 0 0

For house, Lynwode Manor, Market Rasen, for Lieut.-Colonel F. J. Conway Gordon. Mr. C. G. Wray, architect. Quantities by Messrs. Linsdell & Giffard:—

A. Brown, Hull	£4,734 0 0
Wright, Lincoln	4,689 0 0
Blackburn, Hull	4,595 0 0
Kirk & Parry, Sleaford	4,296 0 0
Rudd & Son, Grantham	4,250 0 0
Musgrave, Hull	4,095 0 0
Knight, Sleaford	3,979 0 0
Baines, Newark	3,950 0 0
Walter & Hensman, Horncastle	3,940 0 0
Thompson & Son, Louth (withdrawn)	3,450 0 0

For a reception-room to the Masonic Hall, Reading. Messrs. Webb & Tubbs, architects:—

Higgs, Reading (accepted)	£300 0 0

For lodge, Rock Shaw, near Merstham, Surrey, for Mr. W. Gardiner. Messrs. Webb & Tubbs, architects:—

Gray, Reigate	£725 0 0
Thompson, Caterham	694 0 0
Kingerlee, Banbury (accepted)	655 0 0

For additions to mansion, Rock Shaw, near Merstham, Surrey, for Mr. W. Gardiner. Messrs. Webb & Tubbs, architects:—

Gray, Reigate	£1,173 11 8
Kingerlee, Banbury	999 0 0
Thompson, Caterham	956 0 0

For new billiard-room, Wellington Club, Reading, for the Directors of the Conservative Club. Messrs. Webb & Tubbs, architects:—

Pegler, Reading	£461 0 0
Winter	454 17 0
Strong	440 0 0
Lewis & Son	435 0 0
Woodroffe	410 0 0

For additions to buildings, Froxfield Vicarage, near Hungerford, for the Rev. R. C. Stiles. Messrs. Webb & Tubbs, architects:—

Kingerlee, Banbury (accepted)	£100 0 0

For boat-houses, Tilehurst, near Reading, for Messrs. Hawkins. Messrs. Webb & Tubbs, architects, 1, Blagrave-street, Reading:—

Dry Boat-house.

Woodroffe, Reading	£100 0 0
Kingerlee, Banbury	80 0 0
Talbot, Caversham (accepted)	60 0 0

Wet Boat-house.

Talbot, Caversham (accepted)	50 0 0

For stables, Tilehurst, near Reading, for Messrs. Hawkins. Messrs. Webb & Tubbs, architects:—

Kingerlee, Banbury (accepted)	£235 0 0

For billiard-room, Tilehurst, near Reading, for Messrs. Hawkins. Messrs. Webb & Tubbs, architects:—

Kingerlee, Banbury (accepted)	£260 0 0

For new laundry and alteration to hotel, Tilehurst, near Reading, for Messrs. Hawkins. Messrs. Webb & Tubbs, architects:—

Kingerlee, Banbury (accepted)	£200 0 0

For cottages, Sonning, near Reading, for Messrs. Hawkins. Messrs. Webb & Tubbs, architects:—

Simmons, Reading	£335 0 0
Strong, Reading	315 0 0
Bottrill, Reading	312 0 0
Margetts, Reading	309 0 0
Wernham, Reading	308 10 0
Kingerlee, Banbury	285 0 0
Cox, Sonning (accepted)	256 0 0

For new sewers in Torrington-street, Torrington-square, Torrington-mews, &c., for the Board of Works for the St. Giles's District. Mr. G. Wallace, surveyor:—

J. Mowlem & Co.	£2,439 0 0
Hoare & Sons	1,852 0 0
F. Keeble	1,680 0 0
J. Pizzey	1,665 0 0
Nowell & Robson	1,655 0 0
C. Killingback (accepted)	1,590 0 0

For building Congregational Baptist Church, Trinity-road, Upper Tooting. Mr. T. H. Vernon, architect:—

W. Johnson, Wandsworth-common*	£1,999 0 0

* Accepted.

For alterations, &c., to the Lawns, Balham Hill, S.W., for Mr. E. F. Hilton. Mr. A. Causton, architect:—

Greenwood	£1,490 0 0
Hall, Beddall, & Co.	1,344 0 0
Stimpson & Co.	1,230 0 0

For new offices, &c., for Messrs. Carter Paterson & Co., at 128, Goswell-road. Mr. William Eve, architect, 10, Union-court, Old Broad-street, E.C.:—

Spencer & Co.	£616 0 0
W. Downs	463 0 0
F. Higgs	460 0 0
W. Rowe	450 0 0
Harris & Wardrop	394 0 0
D. D. & A. Brown (accepted)	355 0 0

For enlargement of stables, for Messrs. Carter Paterson & Co., 128, Goswell-road. Mr. William Eve, architect:—

		Deduct if old roof retained.
Harris & Wardrop	£863 0	£105
F. Higgs	810 0	90
W. Downs	727 0	50
D. D. & A. Brown (accepted)	720 10	60

For alterations and additions to premises in Noble-street, St. Luke's, for Messrs. George Farmiloe & Sons. Messrs. Isaacs & Florence, architects:—

C. P. Roberts	£811 0 0
Wells & Son	785 0 0
Crabb (accepted)	774 0 0

TO CORRESPONDENTS.

Tyro (the writer who has placed Portland stone under the head of "Freestones" is quite correct).—*Re* Cemetery and Cellars (apply to the Sanitary Officer of the Parish or to the Local Government Board. But he should be sure that he is right before troubling them).—T. T. (received).—W. J. (should give names and amounts).—Junius (the chairman had no power to receive a motion from an Associate).—P. B.—C.—J. H.—D. & G.—A. K.—Capt. R. J. C.—B. & D.—H. J. J.—B. F.—L. W. & B.—E. R.—E. I. B.—M. T. & H.—A. W.—E. G.—B. & O.—E. & C.—L. B.—D. S. D.—J. G. Y.—F. B.—D. & Co.—G. P.—J. N.—A. J. R.

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